DOMESTIC ENGINEERING

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THE MAIL ORDER HOUSE, AND THE PLUMBER AND FITTER.

THE influence of the printed word was never so manifest in selling methods before, as it is right now. This is particularly the case in the selling of plumbing and heating goods in the small towns and country.

If you were to be told that the total business in plumbing goods only, in one large Chicago mail order house last year, was more than **one million and a half dollars,** you would probably sincerely doubt it, yet this is the case with one house, and the mail order business of the other houses would probably bring the total in plumbing equipment up to nearly **three million dollars.**

Heating material is not included in these figures and the fact that steam and hot water heating equipment, radiation and furnaces, enter largely into the business of these mail order houses, would seem to indicate that a total of **five million dollars** for this business might be a fair estimate of the total for the year.

Every bit of this material is shipped to consumers, from the Atlantic to the Pacific, some of whom put it in themselves and others have the equipment installed for them.

The loss to the reputable plumbing and heating fraternity, and to the jobbers and manufacturers who are doing business along accepted lines, is tremendous.

There are hundreds and thousands of instances, of course, where the owners have found their bargain a sad one, and there is no recourse for them after they have paid their money and taken the risks which necessarily come with the purchase of equipment of this sort by mail.

The sad part of the whole business is that these **five million dollars,** or whatever the sum may be, has passed through the mails, and through the banks, and over the counters of the mail order house before any goods have been shipped, or before there has been an opportunity to test out the equipment to see that it is in proper working order.

No plumbing or heating job is complete until **it works.** Nobody knows this better than the plumber and fitter who has had to go over a plant that he has installed and straighten out kinks and mistakes made by the manufacturer or by his own men.

Nor is this condition one in which the local dealer is altogether to blame. The writer knows of many customers who would take the word of the mail order house as gospel without even giving the local dealer a chance to tell of his goods or demonstrate his ability.

However, the success of the mail order house in increasing the total of its business in these lines would seem to offer a suggestion that many of the master plumbers and fitters could use to advantage. You have often heard the phrase, "you'll have to fight the devil with fire." There is a grain of truth in this when it comes to competing with the mail order houses.

No one has a monopoly of Uncle Sam's mail service, and the fact that the parcel post has come into general use has not made it easier for the shipment of plumbing and heating goods by mail.

As a consequence, there is not a thing to prevent the master plumber and fitter in his own territory from making competition so hot for the mail order houses that they will find it unprofitable to spend money in following up the trade in these lines.

Apparent cheapness in their prices can be argued

down by any man who has a spark of salesmanship in his makeup. The man on the spot is the one who should be able to carry off the plum, and the argument is always in favor of the local man if he takes advantage of his opportunities.

Too many times the master plumber and fitter feels that he is too busy to give attention to advertising and circularizing his own local territory. This is not an unusual occurrence and may be said to be the cause of much mail order material getting into the territory of the local dealers.

The policy of the mail order house is to start in with a promising list of names of well-to-do farmers and owners of suburban homes. These lists are very carefully compiled and are checked up to date to keep them "live." Steadily and persistently, advertising for the line that is handled by mail order houses is poured into the mail box of every man who is on the list. Seldom a week passes that something is not received from the mail order house. Attractive literature, couched in language that is carefully calculated to draw the money from the local bank, does its work with surprising facility.

If it were not for this persistency the whole scheme of the mail order plan would fail of its own weight, but the heads of these businesses know that they are thereby working while others sleep, and that they will get results sooner or later.

If persistency of this same sort were followed by live dealers in their local centers, the results would be many times better for them. The quality of their goods would stand up under inspection, and the lines could be shown on the floor to excellent advantage.

One of the circulars recently gotten out by a Chicago mail order house is illustrated in reduced form on this page. The logical argument, and the effort given to make it easy for the customer to buy, can readily be seen.

The circular as it was sent out measured 17 inches wide and 11 inches high, and on the back of this appeared ruled blanks in which would be shown the basement, first floor and second floor plans, so that the location of each plumbing fixture could be indicated and every detail could be worked out by the so called experts in the office of the mail order house.

Listen to what they say as a clinching argument, on the back of this same sheet:

"Our economical system of merchandising, applied to modern plumbing fixtures, makes you a saving you cannot afford to overlook. We base our prices on actual manufacturing cost, insure quality by properly controlling the manufacture of our merchandise and guarantee all the goods we offer in accordance with the guarantee printed on the front cover of our big general catalog. Besides the saving in the cost of material, our working plans and instructions so simplify the installation of our plumbing systems that you, if you care to do so, or

DO YOU WISH TO ENJOY THE MANY COMFORTS OBTAINABLE FROM MODERN PLUMBING IN YOUR HOME?

Would you like to install the highest quality, latest design plumbing fixtures in the most approved manner and do it at a great saving? If so, fill in this plan blank, send it to us and we will give you an itemized estimate and complete specifications covering a modern plumbing system of the highest quality material throughout for your building. We respectfully refer you to the pages in the accompanying catalog describing our up to date plumbing fixtures and material. Be sure to fill in this blank and mail it to us at once. We can make you a large saving in the purchase of a modern plumbing system for your home.

IT IS VERY IMPORTANT THAT ALL INFORMATION ASKED FOR BELOW BE CAREFULLY GIVEN.

NAME _____ Date _____ 191

ADDRESS _____

City or town in which goods are to be installed _____

Catalog No. of bathroom outfit desired _____

Catalog No. and size of sink desired _____

Catalog No. of range boiler desired _____

Extra heavy or standard? _____

Catalog No. and size of laundry tub _____

Do you wish to use extra heavy soil pipe? _____

Do you wish to use standard soil pipe? _____

Will your sewer empty into a cesspool or into a public sewer? _____

If a cesspool, how far from the house will it be? _____

Shall we figure on soil pipe to sewer or cesspool? _____

Is your house completed or being built? _____

Can the soil pipe be concealed in a partition or will it be exposed in a room? _____

Do you want iron pipe connections on fixtures? _____

Do you want lead pipe connections on fixtures? _____

Do you want supply pipe and waste to floor? _____

Do you want supply pipe and waste to wall? _____

Is your source of water supply a city waterworks? _____

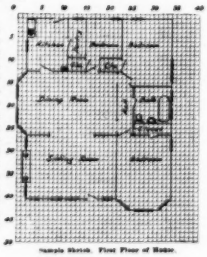
What is your highest water pressure? (You can secure this information at the city waterworks.) _____

Has your city a plumbing ordinance? _____ *If so, be sure to enclose a copy of it with this plan blank.*

REMARKS: _____

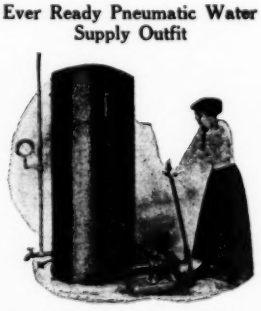
If You Have No City Waterworks You Will Need an Ever Ready Water Supply Outfit. They Are Fully Described in Accompanying Catalog.

You will find it a very simple matter to draw sketches of the different floors of your building as each square of the diagram on the other side of this sheet represents one square foot of space. By measuring the rooms and then counting the squares, you can make your sketches with a pencil and straight edge only. It will be unnecessary to do any measuring on the diagrams; just count the squares and allow one square for each square foot of space in the rooms.



Sample Sketch. First Floor of House.

Ever Ready Pneumatic Water Supply Outfit



As Easy to Operate as Your Washing Machine.

If you have not a city waterworks where you live, you will need our Ever Ready Water Supply Outfit. This will give you all the advantages of a city waterworks. Our Ever Ready Outfits are fully described in the catalog accompanying this plan blank.

One Side of Information Blank Used by a Chicago Mail Order House.

any other man handy with ordinary tools, can install the entire system and secure the best possible results. If you are interested in this great saving and want to get the very best up to date plumbing for your home, be sure to fill out both sides of this sheet and return it to us promptly. Our estimate will convince you that we can save you a great deal of money, besides furnishing you with the highest quality plumbing fixtures which may easily be installed in the latest approved manner."

If the business that is now going to the mail order houses is to be lined up by the trade that is entitled to it, some concentrated action should at once be taken to open up a campaign against mail order houses that will show where the trade stands, and will eventually work for the satisfaction of owner, dealer, jobber and manufacturer.

Right now is the time to prepare plans and work out something definite along these lines. Talk this over in your local association. Get some action in the state associations that will be concerted and let the people know that you are not sitting idly by, watching good business get away that can be corralled. You may say that very little of this business is bothering you, but when you see the figures of the amount of business being done by these houses as compared with the total business done in these lines in the country, you will not feel as satisfied about the problem as you have in the past.

The trade has begun to feel the effect of this mail order competition.

How have you met the conditions in your locality?

Let us hear from you as to what you have done to overcome it. It is high time that something was being done.

THE NEW YEAR'S NUMBER.

THE large number of men in the trade who have taken advantage of our invitation to submit a letter or an article for publication in our New Year's number, which is to be issued on December 27th, has indeed been most encouraging.

The "Congress of the Trade" last year was one of the big features of the holiday number of "Domestic Engineering." The ideas brought out and the expressions discussed were of a most helpful nature to manufacturers, jobbers, master plumbers and fitters, heating and ventilating engineers, plumbing inspectors, and others in the trade, who were looking forward to this issue in hopes of getting something from it well worth while.

The time is not yet too far gone to send us something for publication in this issue. Send along your expression of any sort; the ideas that will be helpful to the trade in general. The thoughts that you bring out will help to stimulate the men in all parts of the country who are having troubles similar to your own. This is one way of doing the deed with the Christmas spirit, and there is good to be gotten from the thoughts you may express in this manner.

If you have run across some ideas that make short cuts for getting business, for doing work, for collecting accounts, or that will in any way offer suggestions that can be used by someone else, do not hold them back, but send them to us at once so that they may be given to the largest number of readers in this New Year's greeting number of "Domestic Engineering."

This is an age of co-operation, of interchange of ideas, of the greatest good to the greatest number. Help us to dispense helpfulness by doing your little part. Write today—don't put it off.

NEW BUILDING OF KALAMAZOO MASTER PLUMBER.

Ferd J. Hotop Now Located in New Quarters Where Every Modern Convenience Exists.

Fred J. Hotop, well-known plumber and steam-fitter at Kalamazoo, Mich., has just moved into his new building which he has had put up specially for this line of work. The illustration of the new building graces our frontispiece this week. There are no frills or furbelows on the building, but it is atractively designed for the practical handling of a large business, with room for expansion. The building cost $12,000 to construct and is one of the best designs of the kind in the country tor the purposes.

Mr. Hotop has been in business in Kalamazoo for the past eight years, and has been favored with considerable good business. Some of his larger jobs recently completed are: The plants of the Watervliet Paper Co., Kalamazoo Vegetable Parchment Co., and Armour & Co., Mattawan, Mich. At present he is doing the work in the Kalamazoo Lose Leaf Binder Co., Christian Science Church, and the Tuberculosis Hospital.

One little job in particular in which Mr. Hotop takes considerable pride is the promptness with which he handles the boiler job in the Hotel Holt, and a newspaper clipping herewith will give a little idea of what a Kalamazoo master plumber can do in an emergency:

"What is believed to be the swiftest installation of a steam boiler in the history of the city was made at the Hotel Holt. At 10 o'clock one Wednesday night the boiler used to heat the hotel blew up and was beyond repairs. No new boiler could be obtained in Kalamazoo and it was necessary to order from Chicago. This was done by telegraph. The boiler was shipped by express early the next morning and arrived in the city at 2 o'clock the same afternoon. Within an hour, Fred Hotop and his plumbers had the boiler at the hotel and were hard at work making the necessary connections and adjustments. Before midnight the boiler was in place with steam up, as if nothing had happened the night before."

Septic Tanks and Sewage Disposal

As Presented by the Committee on Research Before the American Society of Inspectors and Sanitary Engineers at the Louisville Meeting

Growing Prestige of the Plumbing Inspector.

IT is gratifying to note that inspectors of plumbing are steadily strengthening their position throughout the country.

A single case in point is that in which our member, A. C. Shaver, won a Supreme Court decision confirming his authority over the Board of Education and other civic bodies in Pasadena, Cal., on January 7, 1913. For the past three years there has been continual conflict between the inspector of plumbing and the Board of Education owing to the inspector having condemned the plumbing in several of the city schools and having it taken out. The warfare was brought to a crisis when the Board of Education saw fit to refuse recognition of the inspector of plumbing's authority over a group of high-school buildings, claiming that the city had no authority over the school district. The award of the Superior Court resulted in the holding up of $492,000 worth of re-enforced concrete high-school buildings until the necessary permits are taken out by authorization of the city plumbing inspector. The court declined to recognize the authority of the inspectors provided by the Board of Education.

Septic Tanks and Sewage Disposal.

The most important problem in our sanitary work is the disposal of sewage from all sources. It is a well-known fact that the wastes of each plane of life are destructive to the life from which they spring. One form of existence

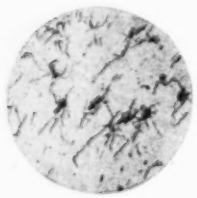


Fig. 1.

Fig. 2.

thrives on the wastes of the one above it or below it, but never on its own. All the terrible diseases of mankind have had their origin and still have their origin in the insufficient removal of the waste products. Since our

Fig. 3.

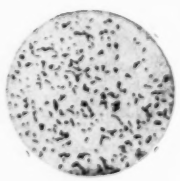


Fig. 4.

population is augmenting so rapidly and the congestion in our cities and towns is increasing, the plumbing inspector and sanitary engineer are obliged daily to exercise greater vigilance in the character of the installations designed to remove these wastes. Furthermore, he has to consider a multiplicity of conditions which demand that he shall become thoroughly conversant in the essentials of sewage removal and destruction, and a few notes along these lines may form a base for further articles of research prepared by members of the society for future conventions, or by special committees appointed for this purpose.

In the study of sewage disposal systems there should be at least some well-defined knowledge of bacteriology possessed by the student. The first discovery of the existence of bacteria is supposed to be by a Dutch lensmaker named Van Leeuwenhoek. What a revolution has been accomplished by the placing of one lens in front of another and thus bringing into play the marvelous seeing power of the miscroscope! The Dutchman reported, after looking through the lens, that he saw "tiny animals which moved about in the most amusing fashion." For nearly two hundred years that represented the sum of human knowledge on bacteriology.

Slide 1 shows in Figure 1 tubercle bacilli from a pure culture on glycerin agar. Figure 2 shows typhoid bacilli from a young culture on agar, showing flagella.

Figure 3 shows a scraping from the spleen of a guinea pig dead of anthrax, showing the bacilli mixed with leucocytes. Figure 4 shows bacilli coli communis. These bacteria are typical of those found in crude sewage.

Slide 1a shows a group of leading bacteria from which you may take your choice in acquiring your various diseases.

The Disposal of Sewage.

It was not until 1830 that the invention of the achromatic objective brought microscopy to a science, and it was not until 1865 that Pasteur taught the whole of Europe its great lesson in bacteriology by saving the silk worm industry of the Old World from extinction by his use of the microscope and his treatment of the bacteria of the plague. This was one of the most wonderful triumphs accomplished by man, and the full story of his five years' war on the evil bacteria is more fascinating than the latest best seller.

There are three prime types of bacteria, the rod form or bacillus; the ball form or coccus; and the spiral form or spirillum. Since we have to deal with these interesting animalcules it is just as well that we should become entirely familiar with them at least by name and form, so that we may be able to understand better their habits and actions under various conditions.

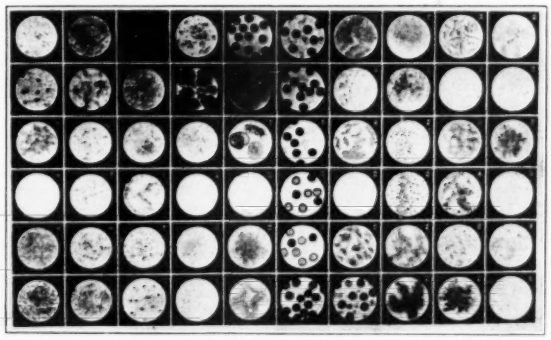
The plumbing inspector and sanitary engineer will find great benefit, however, in the understanding of another classification, which, disregarding shape, divides bacteria into two classes—those which are able to most actively sustain life with oxygen and those which are able to most actively sustain life without oxygen. The former are called aerobic bacteria, and the latter are known as anaerobic bacteria. These two classes play most important parts in dealing with the sewage and accomplish its destruction, each in its own way; some of the advance destructive work is done most effectively by the anaerobes, and the second stage is completed by the aerobic bacteria, and the efficiency of the work of both types determines the clarity and purity of the effluent. The work of the aerobic

The complete report of the committee on Research, as presented at the Louisville meeting, May 20, 1913, by Chairman Harry de Joannis, will be published in regular installments from week to week, each subject being complete in itself.

bacteria demands for highest efficiency, a well-defined intermittent flow of sewage.

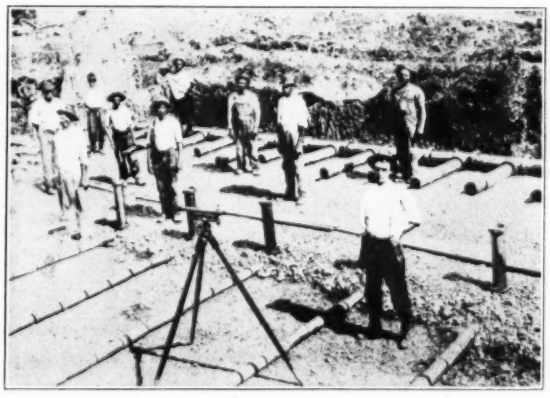
Among the many letters seen by your committee requesting information on septic tanks, the two presented herewith are fair samples, by means of which can be shown the general ignorance of those engaged in the sanitary trade concerning the first principles of effective sewage disposal.

"We are figuring on putting in a septic tank at a country club. The sewer now drains into an open field some distance from the building, but they want the space for



Slide 1a—Take Your Choice.

tennis courts and we must do away with the sewer. Kindly advise us what size tank will be required for this building. Let us know if you can furnish this tank and telegraph price as we want to give an estimate during the next two days."



Slide 2—Installing An Ashley System.

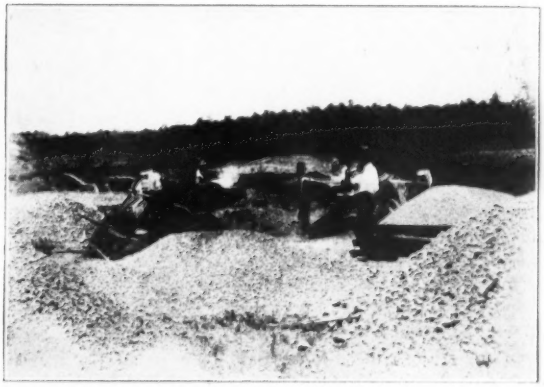
The writer of this communication is allied with a first-class plumbing and heating concern, but forgets in his request to give any dimensions of the country club, or the number of people who will be assembled there at any one time, and therefore no information is given concerning the amount of sewage to be disposed of. It is evidently supposed, as already stated in our first remarks on this subject, that the septic tank possesses the same qualities as Aladdin's lamp, and the elasticity of a hot water bag. All one has to do apparently is to install it and it will perform the work of destruction of sewage whether there is an outlet or not for the effluent, and will accommodate itself with phenomenal elasticity to any amount of sewage delivered to it whether the country club has a membership of fifty or five thousand.

A second letter requests agency for the tanks of a certain concern as they may be able to sell a few. "We are putting up a house now for ourselves," the letter says, "and would like very much to find out the cost of same." They presumably refer to the tank.

As a climax a telephonic request is to be noted for information and quotation on a septic tank. The inquirer was asked if he did not desire information on sewage disposal. He replied, "No, not sewage disposal; just a septic tank." They probably had little connection in his mind.

It is the lack of definite understanding concerning essentials of sewage disposal that is most deplorable and harmful to all legitimate concerns who desire to conduct their sanitary engineering business along scientific lines.

It is not our purpose to present a history of the evolution of the different types of septic tanks and sewage disposal systems. This can be left as work for another year by a special committee if the society so desires. The slides thrown on this screen will show some installations by leading manufacturers and designers of sewage disposal apparatus, and any description presented will center



Slide 3—Preparing Nitrification Bed.

round some feature on the slide under consideration without any pretense to describe any one individual system in detail. It is only during the last fifteen years that there has been any definite recognition of the benefits that accrue from a combination of anaerobic and aerobic action for the effective disposal of sewage. The types of installation shown represent standard practice up to the present time.

Slide 2 shows an Ashley installation in course of construction, the men being engaged in the laying of the underground air ducts and collecting drains for the distribution of the sewage throughout the nitrification bed, and also for the admission of air for the stimulation and maintenance of aerobic bacterial activity.

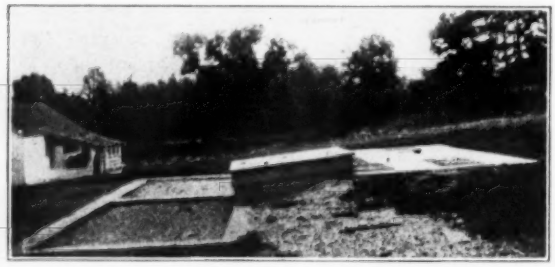
Slide 3 shows the preparation of the material for the Ashley nitrification bed, the men engaged in washing and screening gravel used at the Alabama Boys' Industrial School, Birmingham, Ala. In this system the reduction and decomposition of sewage takes place in a cast iron liquefying tank in which a one-third purification is attained. The liquid then passes from this tank to the nitrification bed on which special stress is laid by the designer. Under aerobic action the poisonous nitrites are changed to harmless nitrates, while the nitrogen gas is freed and escapes. The Ashley nitrification bed is constructed entirely beneath the soil, and it is varied in form according to whether the effluent is to be discharged in rivers, streams or lakes, into the soil below or on the surface of the soil.

Slide 4 shows a Cameron installation at the Lafayette

Cotton Mills, Lafayette, Ga. It has a capacity of 5,000 gallons daily. This plant has been operating for a number of years with satisfaction.

Slide 5 shows a sewage disposal tank at Kew Beach, Toronto, Ontario, with a capacity of 250,000 gallons daily. This plant discharges its effluent directly into the lake, the effluent being practically as clear as the water into which it is discharged.

Slide 6, like the previous two, also shows a Cameron installation and is of exceptional interest by virtue of its



Slide 4—Cameron Installation at Lafayette, Ga.

location. It serves the El Tovar and Bright Angel Hotels in the Grand Canyon, Arizona, and has a capacity of 50,000 gallons daily. Owing to the clearness of the atmosphere the nuisance from sewage deposits proved to be objectionable, and in warm weather this nuisance extended to a great distance. The increasing number of tourists visiting Grand Canyon was a factor in careful consideration of the best methods for sewage disposal. An interesting feature of the installation is that all the effluent passing from it is used in the stationary and locomotive boilers operating on the railroads, and the statement has been made by the engineer, R. L. Watts, that it is the best boiler water ever used, and the ability to use it has saved the railroad company over $2,000,000 a month for water. Prior to the installation of this system all water

Slide 5—Sewage Disposal at Kew Beach, Canada.

had to be hauled in tanks many miles up steep grades, at a cost of $1.65 per thousand gallons. About 60 per cent of all water used in connection with the hotel is restored to commercial use.

Slide 10 shows an Imhoff sewage settling tank with horizontal flow suitable for 10,000 inhabitants, with a flow of 1,500,000 gallons daily. The capacity of the settling basin is 22,250 cubic feet. The time of flow is two hours, the hourly flow being estimated as one-tenth of the daily flow. The capacity of the sludge decomposing chamber is 9,000 cubic feet. You will note two sludge decomposing chambers. While the sewage is flowing through the settling basin the suspended matters settle and pass through the slot into the sludge chambers. The sludge chambers are extended upward on both sides of the settling basin to provide space for floating sludge, or "mat," and opportunity for the gases of decomposition to escape. There is no flow of sewage through the sludge chamber. The sewage is removed from the bottom of the decomposing chambers by gravity to an 8-inch sludge pipe whose outlet is 4 feet below the sewage in the tank.

Sludge Chamber: In the operation of this type of chamber the sewage should be screened through openings not smaller than two inches to prevent large objects clogging the slots in sludge pipe. The position of the surface of the sludge deposit is measured at regular intervals by lowering on the end of a string a thin flat metal plate two feet square. In deep tanks this sludge is full of gas bubbles and contains about 75 per cent of water, flowing easily.

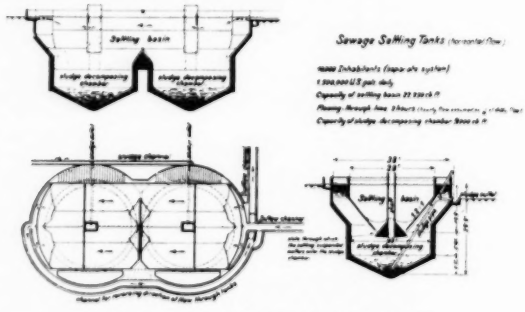
A simple method of determining the percentage of solid matters deposited is by taking equal amounts of the inflow and the corresponding out-flow, placing them in calibrated glasses or jars and allowing them to stand for two hours. The difference between the deposits in cubic cen-

Slide 6—Sewage Treatment in Grand Canyon.

timeters—assuming the amounts taken to be one litre each—divided by the amount in the glass which contains unsettled sewage will give the percentage of removal of suspended matter. In some of the German plants with a two-hour flow a removal percentage of 95 to 97 per cent has been noticed.

The next three slides show the application of the Miller siphon to sewage carriage and disposal problems.

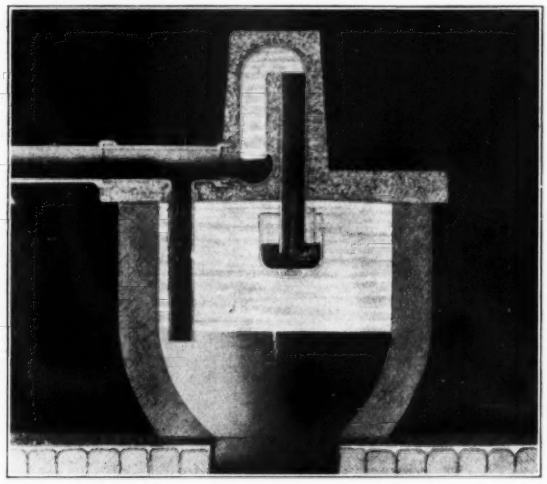
In Slide 11 the siphon is presented as applied to sewer flushing. The operation of the siphon is interesting and can briefly be described to advantage. The water entering the tank rises above the lower edge of the bell, sealing it and enclosing the air within it, the lower portion of the



Slide 10—Imhoff Sewage Settling Tank.

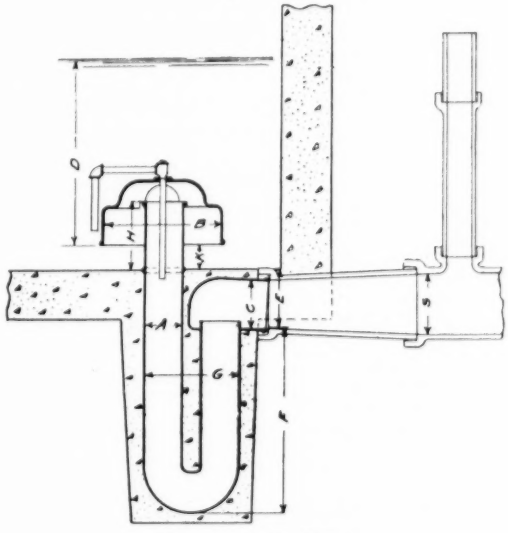
trap being, of course, concealed with water. With the rise of the water level, the confined air gradually forces the water out of the long leg of the trap until a point is reached where the air endeavors to escape around the lower bend. It will be readily seen that the difference of

water level in two legs of the trap equals the difference of the level between the water in the tank and the water within the bell, consequently the column of water in the short discharge leg has practically the same depth as the head of water in the tank above the level at which it stands in the bell. At a certain depth, therefore, the two



Slide 11—The Miller Siphon.

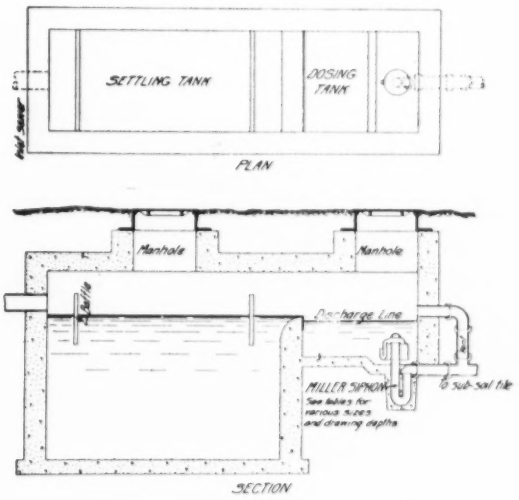
columns of water counterbalance each other. A further supply of water to the tank forces a portion of the confined air around the lower bend, which in its upward rush carries with it some of the water in the short leg, destroying the equilibrium and establishing siphonic action. Siphonage continues until the bottom of the ball is again uncovered and the siphon vented by air admission through the sniff hole when the operation is repeated.



Slide 12—Miller Siphon

Slide 12 shows a Miller siphon in the line drawing as applied to a sewage disposal installation, and Slide 13 gives a plan of the completed installation.

Slide 14 presents a sand filter tank in a typical layout equipped with siphons at the inlet from the settling tank. The size, number, drawing depth and arrangement of the dosing siphons may be varied to suit the size of the plant and the topography of the site. In general figures these beds are constructed on a recognition of from 30 to 50 gallons per capita of sewage daily, and the settling tank contains from twelve to twenty-four hours' flow. The sizes of siphons used vary from a 3-inch siphon for from

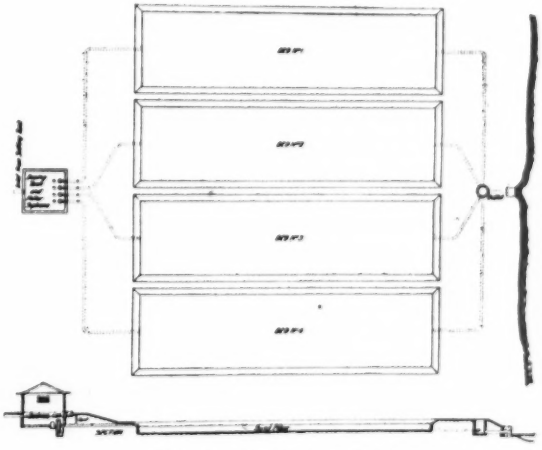


Slide 13—Sewage Disposal with Siphon.

five to fifteen persons to an 8-inch siphon for from 200 to 1,000 persons.

Slide 15 shows one of these installations at the plant of the Insane Asylum, Danville, Pa., operating with an outside temperature of 14 degrees below zero. This is equipped with a sprinkler system. A 12-inch Miller siphon is used and 54 Taylor hexagonal nozzles.

This rather hurried presentation of interesting features



Slide 14—Sand Filter Tank.

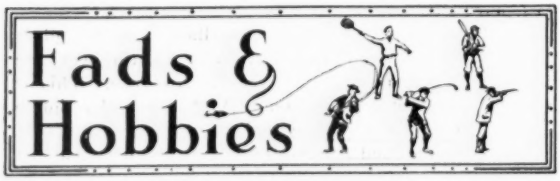
of sewage disposal systems is meant to hold your interest and focalize your attention upon our concluding paragraph on this subject. Your committee deemed it wise to ask for the appointment of a special committee on sewage disposal practice with special reference to residence installations and installations for small towns and villages.

Several things should be clearly borne in mind. A septic tank should be scientifically built and should provide in its construction for both anaerobic and aerobic processes in proper proportion. It should be our endeavor by

careful committee study to present to this Society each year a clear statement of advanced practice in sewage disposal along these lines. Interesting experiments are now being made in this country and in Europe with a view of establishing a standard of clearness of effluent by means of which the efficiency of any sewage disposal system may be gauged. In the meantime it should be the duty of the members of our society to discountenance by every means in their power the installation of septic tanks such as are now being placed on the market by individuals of

Slide 15—Sewage Disposal at Insane Asylum.

no standing and which claim to utterly destroy sewage in a small tank half the size of an ordinary cesspool and turn out at the other end clear sparkling water fit for the dinner table. It would almost seem that this statement was exaggerated, but we have received information of a number of similar installations which are a menace to public health and bring into disrepute properly installed sewage disposal systems by sanitary engineers of good standing.



The Poet Master Plumber.

Lots of folks imagine that a master plumber is about the last man in the world to have any real poetry or sentiment wrapped up in his nature. They run away with the notion that a poet must of necessity be a dreamy and wild eyed being, with long hair and a flowing tie. Well, that's a mistaken idea. We can point out no small number of master plumbers who are versed in the gentle art of writing poems. We unhesitatingly affirm that a man can be practical and poetical at the same time.

"That's buncombe!" some skeptical gentleman may exclaim. Ah, it is *not* buncombe, we insist. We can verily prove our assertion. Among the various master plumbers we know to be A-1 poets, we have particularly in mind at this writing, a gentleman who hails from "Woody" Wilson's state—we refer to William Jacobus, of Newark, New Jersey.

Now, he's some poet, by Jingoes! No two ways about it. Poets may come and poets may go, but they've got to go some to beat William Jacobus.

William has the genuine poetical vein. He can go out bright and early of a morning to look over a job of work, and he does not forget to appreciate the beauty of the sunrise as he hustles along the streets. He has eyes and he sees. He has ears and he hears. He has a brain and he thinks. He's not so busy worrying about money and its acquisition that he forgets the romantic and finer aspects of life.

He is a well-known figure at national conventions of the trade. The boys all like to rush up, slap him on the back and say—"Well! well! Here's Bill Jacobus. A pleasure I'm sure."

Here is a choice bit of poetry which Mr. Jacobus "put over," at the last national convention. It's entitled—"To Our Host—Grand Old Philadelphia."

Where liberty' peal
In days of old
Flamed Patroits' hearts
That ne'er grew cold!

Where in "Cooper Shop"
In the Civil War,
She fed all by
Ten thousand score.

Phil-a-del-phia,
Historic site,
A White Dove of Peace,
Or Sword for Fight!

Phil-a-del-phia,
With hand so free,
The Host of all hosts,
On land, or sea!

Phil-a-del-phia,
Boys, let her go,
Old Glory's Stars and Stripes,
Command it so!

Hip-Hip, boys, now then—
Hip, Three times three,
Phil-a-del-phia,
For you and me!!!

Mr. Jacobus is a genial, congenial, and sociable chap. He has led a very active, a strenuous life. He is today one of the live wires of the trade in New Jersey. When

William Jacobus, Newark, N. J.

he was a young man he smelt gunpowder on the battlefields of the South. He fought gallantly as a member of the Thirty-seventh Regiment, New Jersey Volunteers.

He is an optimist through and through. The glooms don't camp long in his back yard. We present herewith a photo of the "Poet Master Plumber." This was taken on a sunny day. William was in his usual sunny mood. When the photo was delivered to him some days later, he made this notation on the back of it—"My Hobby—Catching Sunbeams."

Mr. Meek had a new conundrum. "Why am I like a pin?" he asked his better half.

He guessed she would answer, "Because you are so sharp," but she didn't.

"Because if you got lost it wouldn't be worth while wasting time to find you," was her reply.

He doesn't ask conundrums now.—The Stationery World.

Questions and Answers

CONNECTIONS FOR MAIN VENT.

Editor "Domestic Engineering": I am sending you two sketches showing different connections of the main vent into the main stack. Please tell me why it is that

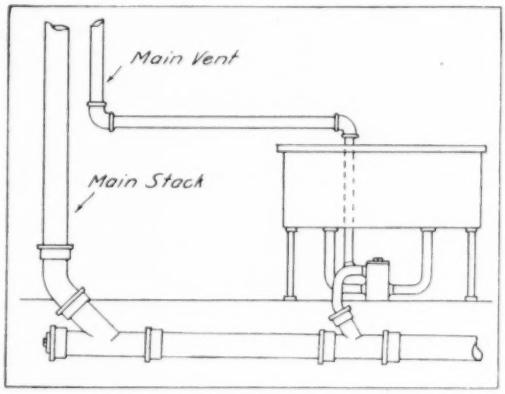


Fig. 1.

the connection in Fig. 2 is considered better than the one in Fig. 1.

Springfield, Mass. Apprentice.

Nearly all the first-class plumbing ordinances call for the main vent connection at the foot of the stack to be made according to the mthod of Fig. 2. The reason for

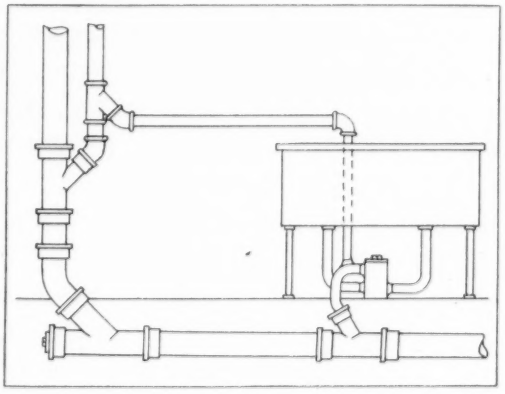


Fig. 2.

this is that condensation, scale and rust accumulating in the main vent pipe, may have a chance to work down into the drainage system and be carried away. In the case of the connection shown in Fig. 1, any such accumulation will collect at the elbow where the vent starts to run horizontally, and in time will close the pipe at this point or at least reduce the effective area very greatly. The accumulation of condensation, rust and scale is very much greater than would perhaps be supposed.

CELLAR DRAINER CONNECTIONS, AND A QUESTION ABOUT SIPHON VALVES.

Editor "Domestic Engineering":—Will you kindly illustrate the best way of connecting a cellar drainer to a sewer? I would also like to know the reason for the pin-hole found on the crown of siphon tank flush valves.

San Francisco, Cal. Ell-Tee.

The cellar drainer is an automatic device used principally for lifting cellar drainage into the cellar drain, when the latter passes out at a higher level than the cellar bottom. Under ordinary circumstances, the cellar drain-

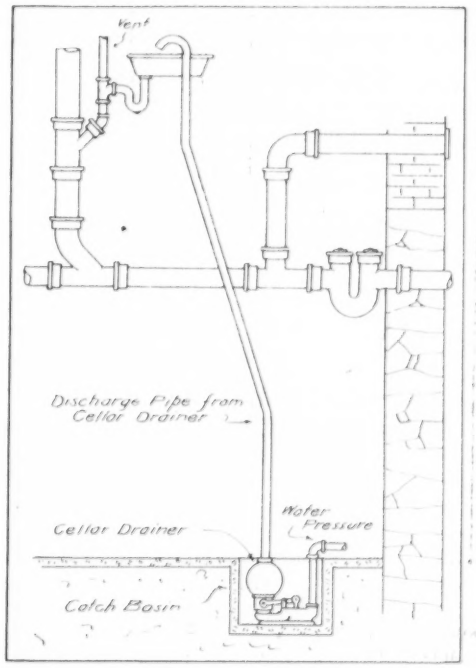


Fig. 1.

age enters the cellar drain by gravity, in the ordinary manner, but under the conditions named above, it is obviously necessary to use some special device for raising the drainage.

The cellar drainer is generally operated by water pressure, the drainer being set in a well or box sunk below the cellar bottom.

When the drainage water accumulates in the catch basin, it will gradually raise the float, and when the latter is raised to a certain point it automatically opens a valve, which admits the water pressure. The water passing under pressure through a jet, creates a partial vacuum, thereby producing a suction which draws the drainage water out of the catch basin into the discharge pipe, the pressure forcing it through this pipe up to the point where it is to be emptied.

The discharge from the cellar drainer should never be made directly into the drainage system, but into a sink or other open fixture.

When the float falls back, the drainer is again ready to repeat the operation whenever the drainage water rises to sufficient height. A lift of 8 to 10 ft. is about all that the average drainer will accomplish.

The discharge pipe should be run as direct as possible, with no unnecessary bends.

Connections for the cellar drainer are shown in Fig. 1.

In Fig. 2 we show a siphon flush valve, the pin-hole mentioned by "Ell-Tee" being at the crown, as indicated.

This pin-hole answers two purposes: Under high pressure, where water empties into the tank very rapidly through the ball-cock, the tank would often flush several times if it were not for the assistance this hole gives in

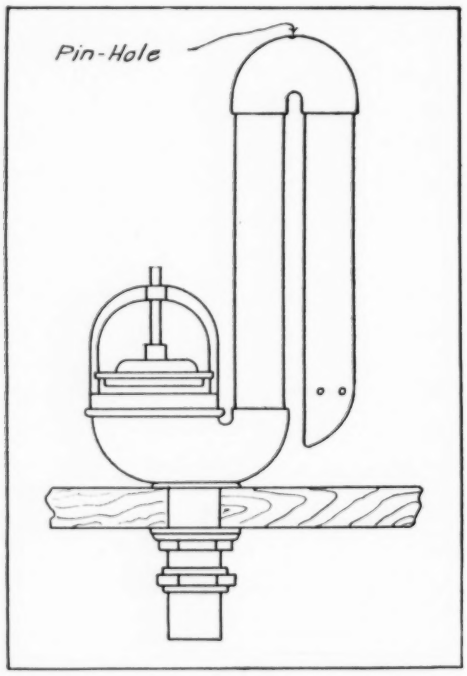


Fig. 2.

breaking the siphon. Another advantage which the pin-hole gains is the fact that the siphon breaks more quickly when it once starts to break, and therefore there is less gurgling and noise from the action of the flush valve.

CAUSES OF HAMMERING IN WATER SUPPLY SYSTEM.

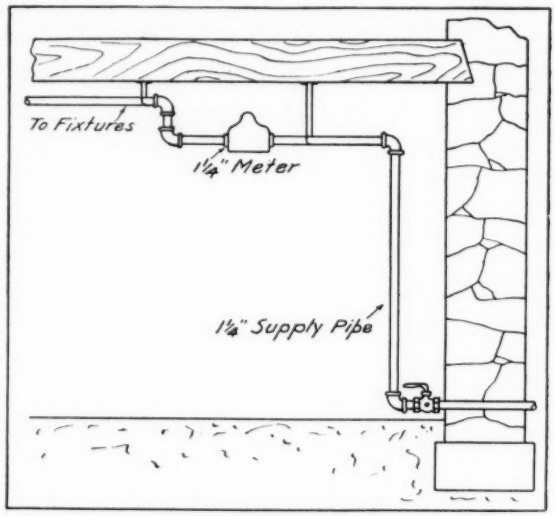
Editor "Domestic Engineering":—The accompanying sketch shows a water supply system, which is troubled with water hammer. Every time a faucet is opened in the building, it causes a great vibration in the water pipe leading from the meter to the fixtures. The meter is suspended from the first floor joists, as indicated in the sketch shown. The sinks and basins are equipped with spring faucets. Twenty-six fixtures are supplied with water through the pipe in question. Kindly let me know what causes this annoying vibration.

Des Moines, Iowa. J. C. J.

We show correspondent's sketch in accompanying illustration.

We note that on the basins and sinks spring faucets are used, and we think that this may be at least a part of the trouble. It is a well-known fact that quick-closing bibbs, such as these, especially where the pressure is high, cause much trouble from vibration. The reason for this is that the column of water flowing through the bibb is instantly checked by the quick-closing action of the bibb, and as water is practically non-compressible, the blow cannot be taken up or cushioned, and therefore is transmitted through the pipe, the shock often causing a heavy vibration.

Another cause of vibration is a loose or worn part in some bibb or valve, which vibrates whenever the pressure is relieved by the opening of some other bibb or valve. When this is the cause of trouble of this nature,



A Noisy Water Supply System.

it is often very difficult to remedy it, as it is generally hard to locate the defective valve, especially on a system of the size of this one.

Possibly these comments will help correspondent to take proper measures to remedy the trouble.

CAPACITIES OF PIPES.

Editor "Domestic Engineering":—Please inform me how many gallons of water a line of 25 ft. of 2-in. pipe will hold.

Also, please publish a table showing capacities of pipes up to 6-in.

Brooklyn, N. Y. Journeyman.

One foot of 2-in. pipe will hold .163 gals. of water. Therefore, 25 ft. of 2-in. pipe will hold .163×25=4.07 gals.

Following is a table of capacities called for by "Journeyman":

Size of Pipe.	Gals. per ft.	Size of Pipe.	Gals. per ft.
½ in.	.01	3 in.	.367
¾ in.	.02	3½ in.	.6
1 in.	.04	4 in.	.652
1¼ in.	.063	4½ in.	.825
1½ in.	.09	5 in.	1.02
2 in.	.163	6 in.	1.46
2½ in.	.255		

Arrangements are being made for the construction of public comfort stations in the Lafayette, Lincoln and Franklin parks at Washington, D. C.

It has just been decided to build a public comfort station at the corner of Jefferson and Chicago Streets, in Joliet, Ill., to cost about $18,000. Work on the building will be started in February, 1914.

CONTINUOUS VENT AND SPECIAL FITTINGS FOR THREE-FLAT BUILDING.

Editor "Domestic Engineering":—Kindly publish in an early issue of your valuable paper layout of a continuous venting system for a three-flat building using F. & W. sanitary T and 4x2x4 hub, with continuous reventing for fixtures and the three fixtures with wastes connected to lead bend. By doing this you will greatly oblige

Subscriber.

Madison Wis.

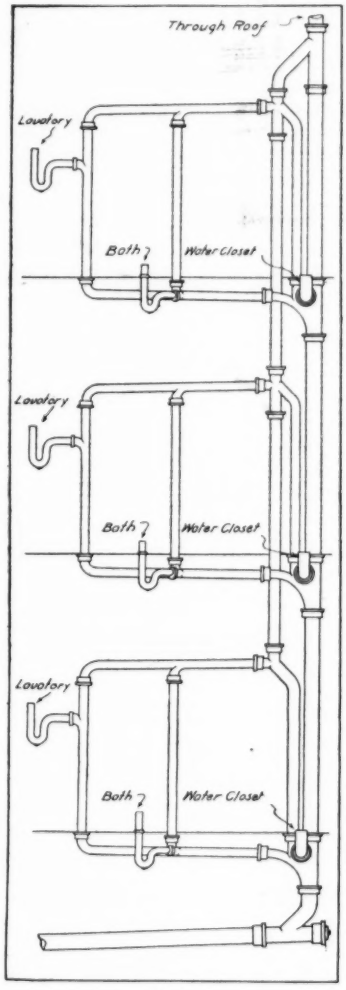


Fig. 1.

In our illustration, Fig. 1, we show the bath room stack for a three-flat building, using F. and W. waste and vent and revent fittings, including an F. & W. sanitary tee with extra 2-inch opening.

Instead of showing the lavatory and bath wastes entering the lead bend, which we consider poor practice in comparison with the work generally installed where F. & W. fittings are employed, we show special fittings for this part of the work also.

The fittings shown in our illustration are but a few of the many which this special line contains. It will be observed that in their use continuous venting is easily obtained, and also separate waste entrance for each fixture into the drainage system. Some of the advantages gained in the use of these and other makes of modern special fittings, are the continuous vent, a much reduced number of joints, compactness and less cost for labor in installing such a system.

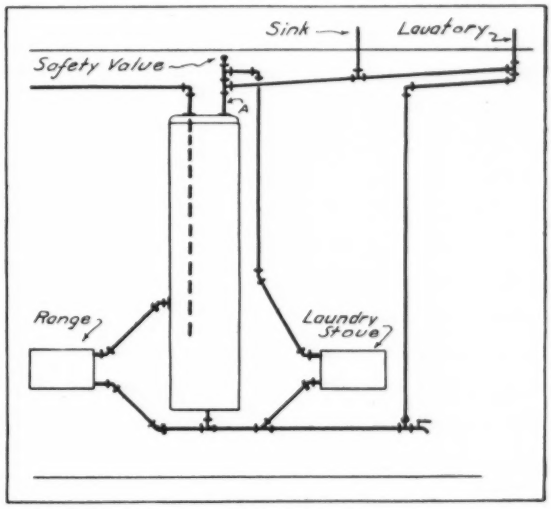
A RANGE BOILER PROBLEM.

Editor "Domestic Engineering":—Enclosed you will find a rough sketch of a range boiler job. Kindly let me know if this little hot water heating system will work, if the range stove only is used or with the laundry stove alone. Or will we have to have fire in both stoves?

Peoria, Ill. A. H. B.

Correspondent's connections are shown in our illustration, and we find the general principles of same correct.

We would suggest connecting the flow pipe from the laundry stove at the joint A, below the point where the supply to fixtures turns off. This would not only make a more natural path for the hot water from the laundry stove, but would prevent the possibility of accumulation of air at the high point on this flow pipe. If this change



A Range Boiler Problem.

is made all air would then find its way out through the fixture connections.

We see no necessity for using a safety valve, as there would appear to be plenty of opportunity for expansion through the boiler supply.

If the boiler is not too large for the heating surface, there is no reason why it should not work satisfactorily with either range or laundry stove alone, or with both in operation at the same time.

WISCONSIN'S NEW PLUMBING CODE NEARLY READY.

Hereafter all plumbing not only in the cities of Wisconsin but also in the country districts must be done in accordance with a sanitary plumbing code.

The state board of health under the direction of the chief inspector, Dr. C. A. Harper, is preparing a state plumbing code with which all plumbers in the state must in the future comply. The code makes minimum provisions and the city or village desiring to make stricter regulations may do so. All such local codes must, however have the state code as their minimum basis.

The code is similar to the Milwaukee code and, in fact, Milwaukee city plumbing inspectors were in Madison last week conferring with the state officials on the arrangement of the state plumbing code. The code as now prepared is only a tentative one, and as soon as it is completed copies will be distributed around the state and then hearings will be held upon the measure and suggestions will be received as to how it may be improved.

The officials of the state board of health have worked very hard on the code and they think they have provided in it for every contingency which may arise.

It is said the code will be particularly applicable to country districts in which a great deal of modern plumbing is now being installed, especially in the more wealthy farming districts of the state.

What Should the Selling Price Be?

Introductory Remarks to the Third Discussion of This Important Topic, Before the December Meeting of the M. P. A. of Philadelphia

By ROBT. H. PFLUG-FELDER

[Editor's Note.—The Philadelphia Master Plumbers' Association, realizing the importance of discussions along educational lines, has decided to make these discussions a part of the monthly meetings and it is intended that the same will cover Business Methods, Shop and Office System, Methods of Reckoning Overhead Cost, Theory and Practice of Plumbing and Heating Work. This new feature was added to the interesting meetings of the Philadelphia Association and was started at the September meeting by a spirited discussion.]

AT the October meeting we discussed "What Should the Selling Price Be?" and while many members clearly understand the method of figuring described, as is shown by replies received, there are many

WHAT IS "OVERHEAD EXPENSE?"

"All that you expend during the course of a year—for which you do not again directly charge your customer."

(Not of course including anything not absolutely necessary to the conduct of the business.)

others who do not clearly see in what relation **overhead expense** stands to the volume of business done. If every one of us would but make it a point to read his trade papers and benefit by the valuable information given in the various articles we would all be better off financially.

ILLUSTRATION #1.

Total business done during 1912 $20,000

Total disbursements under (Overhead Expense) during 1912 $4,500

20,000 / 4,500.000 / 0.225 %
4,000.
500.00
400.
100.000
100.

Shows that running expenses are 22½% in this case.

Fig. 1.

Writers from every section of the country are endeavoring to throw light on such subjects as **overhead burden, office and shop methods** and many other features with the one thought in mind and that is, to help the members of our craft make money.

In the October 18th issue of "Domestic Engineering," Wesley A. Fink points out two cases, one where under shrewd business management the net profits of a plumbing shop in a given year amounted to over 50 per cent of the capital invested after deducting large salaries for the proprietor and the two managers of the concern, and another case where two practical plumbers, doing an enormous business, employing as high as 150 hands, working night and day and Sundays themselves, at the end of the year, had less for themselves than what the wages of their foreman amounted to, the total returns showing less than 2 per cent net profit, on the capital invested.

This, gentlemen, shows clearly that we need education in the methods of **handling** our business. The profits in plumbing are about equal to those of other lines; the ultimate returns depend on shop and office management, and

ILLUSTRATION #2

Total business done $11,748.00

Rent	216.00
Gas	14.00
Heat	19.00
Phones	66.00
Assn Dues	12.00
Wear and Depreciation of Typewriter	15.00
Advertising	56.00
Clerk Hire	312.00
Fire and Liability Ins.	36.00
Miscellaneous Exp.s	275.00
Picked from Cashbook.	
Prop.tr's Salary $25.00 per week.	1300.00
	2333.00

11,748 / 23330000 / 0.19858
11748
115820
105732
100880
93984
68960
58740
10220

Showing (Overhead Expense) to be 19 86/100 %

Fig. 2.

the first thing to understand is how big a load you are pulling, in other words your overhead expense.

What is Overhead Expense? The answer is—**"all that you expend during the course of a year for which you do not again directly charge your customer,"** not of course including anything not absolutely necessary to the proper conduct of your business.

The sum total of these expenses constitutes your **overhead burden** and the sum total, divided by the volume of business done, during the year, gives you your **percentage** of **overhead cost.** See Fig. 1. To illustrate: If your books for the past year show that you did a business of $20,000 and the total disbursements under the "overhead expense" column show a total of $4,500, your "overhead" would be 22½ per cent, as dividing $20,000 into $4,500 gives you this percentage.

About five years ago I talked on this floor on the question of "Shop and Office Management" and at that time spoke of this same topic, although "overhead expense," at that time, to 90 per cent of master plumbers, was an unknown quantity.

One of our members was so interested in the system I described that he called on me the following evening and I took pity on him when he told me that he was just about to mortgage his home to meet current obligations.

He asked whether, for his family's sake, I wouldn't help to straighten him out and I consented to do so, out of pity. I shall illustrate this case as, in doing so, I am pointing out the way for those who do not keep up-to-the-minute bookkeeping systems and if they will do as I did or helped this man to do, anyone can figure up what his percentage of "overhead cost" really amounts to.

I found this member during the year just then passed had done $11,748, being total volume of all bills sent out including cash for all small sales. I then set out to find his "overhead expense."

As he owned his property, he said he had no rent to figure on, but I quickly made him acknowledge that if he should die his wife would have no trouble to rent out the store and basement for $18.00 per month. I approximated what the cost of gas and heat would amount to and, after we had marked down all the items we could settle a figure on, went through his daily cash book and called off all items for which he did not again get paid, such as his carfares when looking at his work, stamps, drills, files, gasoline, matches, cartage, expressage, acid, ads for laborers, wagon hire, pushcart repairs, printing, stationery, soap, etc., and the result was as follows: (See Fig. 2.)

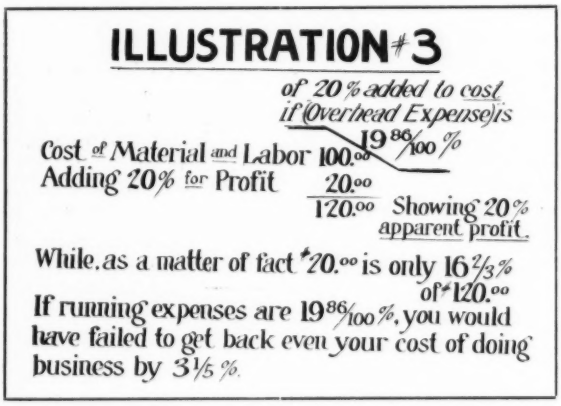


ILLUSTRATION #3
of 20% added to cost
if Overhead Expense is
19 86/100 %
Cost of Material and Labor 100.00
Adding 20% for Profit 20.00
120.00 Showing 20% apparent profit.
While, as a matter of fact $20.00 is only 16 2/3% of $120.00
If running expenses are 19 86/100 %, you would have failed to get back even your cost of doing business by 3 1/5 %.

Fig. 3.

Rent	$ 216.00
Gas	14.00
Heating	19.00
Telephones	66.00
Association Dues	12.00
Typewriter, annually	15.00
Advertising	56.00
Clerk hire	312.00
Fire and Liability Insurance	36.00
Miscellaneous expense, as picked from cash book	275.00
Boss's salary, $25.00 per week	1,300.00
Total	$2,333.00

As he had done a total business of $11,748, I divided $11,748 into 2,333, which gave me 19 85/100 per cent, as his expense of doing business. This was still nowhere near the exact figure, as it failed by a long way to include everything, as he realized, and told me that many a thing would be paid out of his pocket money which he failed to charge up. It also did not include purchases of tools and other matter for which a bill had been rendered, as trying to get this would have meant going over all his bills for a year. It also did not include any time lost by his men for which he paid them, uncollectable accounts or cost of doing guarantee work, all of such items being part of "overhead expense."

I asked this man how he usually figured on a job and he told me that he usually added from 15 to 20 per cent to the cost of material and labor, and as even 20 per cent added to cost is only 16 2/3 per cent of amount of the sum

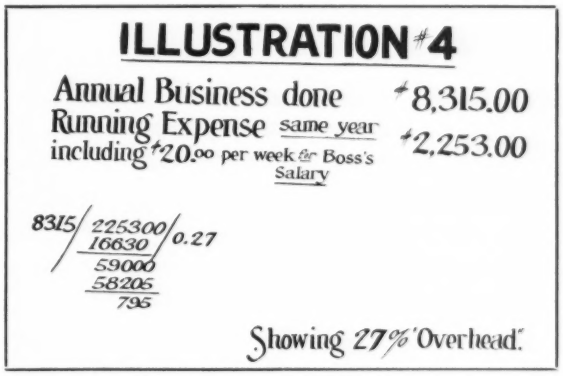


Fig. 4.

reached, he quickly saw that every job where he added 20 per cent to cost did not come anywhere near giving him back the money that it cost him to get the job and to do it, let alone anything for the wife and family. (See Fig. 3.)

I also figured up another man's business. I found the business that particular year $8,315. Expenses were $1,213. Adding $20 per week for his salary gave a total of $2,253, or an "overhead expense" of 27 per cent, and that did not include everything by a long shot. (See Fig. 4.)

Now let us get back to the discussion at the last meeting, "What Should the Selling Price Be?" We then illustrated that if material and labor cost $100 and the expense of doing business was 22 per cent, and it was desired to make 10 per cent actual clear profit, $147 would have to be the amount of the bid. (See Fig. 5.)

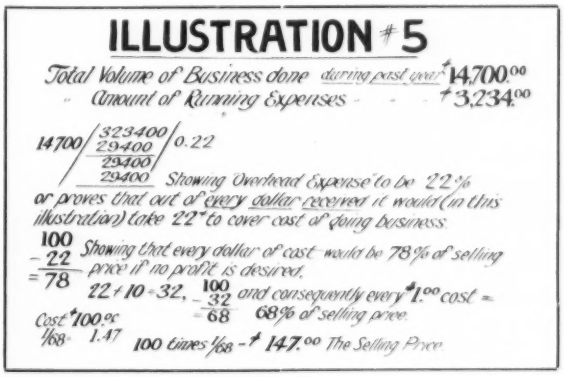


ILLUSTRATION #5
Total Volume of Business done during past year $14,700.00
Amount of Running Expenses - - - $3,234.00
14700 / 323400 / 0.22
29400
29400
29400
Showing Overhead Expense to be 22%
or proves that out of every dollar received it would (in this illustration) take 22¢ to cover cost of doing business.
100
- 22
= 78
Showing that every dollar of cost would be 78% of selling price if no profit is desired.
22 + 10 = 32, 100 - 32 = 68 and consequently every $1.00 cost = 68% of selling price.
Cost $100.00 / 68 = 1.47
100 times 1/68 = $147.00 The Selling Price

Fig. 5.

We will now just stretch these figures and will assume that you have done during the past year $14,700 worth of business, and let us also assume that after figuring up your overhead expenses it amounted to $3,234. Dividing 14,700 into 3,234 gives us 22 per cent. That would show that out of every dollar received, whether it be an estimate or a cash sale, it would take 22c to cover cost of doing business. Deduct 22 from 100, leaves you 78. That proves that **every dollar in cost of material** would have to be

figured as **78 per cent of the price you want to receive** before you would have reached a figure that would pay you back what it costs you to do business.

Let us further assume that you want to make 10 per cent actual profit so you can buy Bobby a new sled for Christmas and a new hat for the Mrs. next Easter, say 10c on every dollar you take in, therefore: 22 to cover

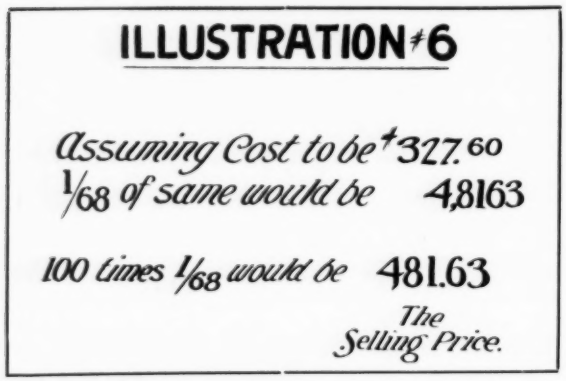


Fig. 6.

expense plus 10 for profit equals 32 and therefore 32 would have to be deducted from 100 which proves that

100—32=68 and consequently **each $1 of COST** would be **68 per cent of the selling price.**

If cost is $100, 1/68 would be $1.47 and 100 times 1/68 $147.00—the selling price.

Or, to use any old figure (See Fig. 6): If cost is $327.60, 1/68th would be $4,81.63. Selling price, 100 times $481.63.

To make the matter still clearer let us use some other figures. (See Fig. 7.) Assuming that you do not carry

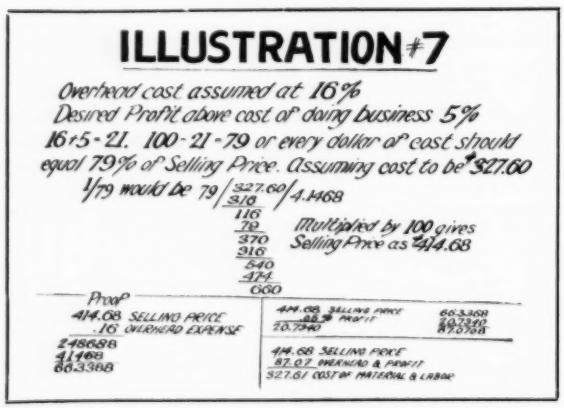


Fig. 7.

on a jobbing business but are handling large work only and therefore assuming that the running expenses are only 16 per cent and you wish to make 5 per cent clear, then 16 plus 5 equals 21. 100 minus 21 equals 79.

Therefore every dollar of cost will have to be 79 per cent of every dollar in the selling price.

In this case let us assume $327.60 as cost, 1/79th would be $4.1468, which multiplied by 100 would make the selling price $414.68.

Prove it.

16 per cent of the selling price is.....$66.3368
5 per cent of the selling price is..... 20.7340

Total.....$87.0708

This amount deducted from $414.68 leaves $327.61, which equals your cost. Therefore (See Fig. 8):

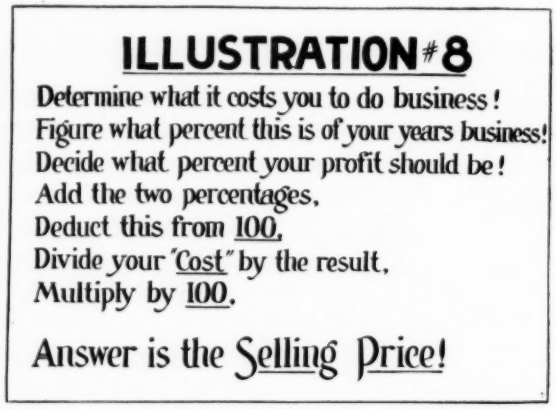


ILLUSTRATION #8
Determine what it costs you to do business!
Figure what percent this is of your years business!
Decide what percent your profit should be!
Add the two percentages,
Deduct this from 100,
Divide your "Cost" by the result,
Multiply by 100.
Answer is the Selling Price!

Fig. 8.

For the information of the members I might say that the papers read here at the meetings are reprinted in "Domestic Engineering" in the copy that reaches you about 10 days after the meeting and if you wish to again take up a certain point you can find it there in print.

[The illustrations shown herewith are reduced from large charts which were used by Mr. Pflug-Felder in illustrating his talk. They tell some vital facts in a graphic manner and will bear close study.]

THE STUFF.

The test of a man is the fight he makes,
The grit that he daily shows;
The way he stands on his feet and takes
Fate's numerous bumps and blows.
A coward can smile, when there's naught to fear,
When nothing his progress bars,
But it takes a man to stand up and cheer
While some other fellow stars.

It isn't the victory, after all
But the fight that a brother makes;
The man, who, driven against the wall,
Still stands up erect and takes
The blows of fate with his head held high,
Bleeding and bruised and pale,
Is the man who'll win in the by and by,
For he isn't afraid to fail.

It's the bumps you get and the jolts you get
And the shocks that your courage stands
The hours of sorrow and vain regret,
The prize that escapes your hands
That test your mettle and prove your worth;
It isn't the blows you deal,
But the blows you take on the good old earth
That show if your stuff is real.

—Exchange.

Modern Practice in Heating and Ventilation

X.—The Single Main or One-Pipe System of Hot Water Heating Suggestions for Actual Installations. Some of the Little Kinks

By ALFRED G. KING

THE single pipe or, as it is frequently designated, the single main system of hot water heating, is largely used by heating contractors in certain sections of the country and has many good features to recommend it. In many respects it resembles the one-pipe circuit system of steam heating. The one-pipe circuit steam system as was discussed in Chapter 7 ("Domestic Engineering," August 9, 1913) requires a main of sufficient size to hold the steam supply for all radiators supplied and also the water of condensation returning from the radiators. The one-pipe hot water main must have sufficient capacity to supply all of the radiators connected to it, and to accommodate the return circulation without too great a drop in the temperature of the water circulating through the system.

In the steam system the steam occupies the upper portion of the main and the returning water of condensation the bottom. In the single hot water main the hotter water occupies the top of the main and the returning water the bottom. In the steam system the steam and water travel in the same direction without friction, except that caused by pipe and fittings, and likewise in the hot water job the hot and cold water travel in the same direction.

These are the points of similarity to be found in both systems.

Figure 1 illustrates the method of piping for a circuit system of hot water heating. For an ordinary job of this character the main makes a circuit of the building to be warmed supplying the radiators on all four exposed sides. The illustration represents a job of such size that it is advisable to divide the circuit and therefore a single flow is run through the center of the basement to the end opposite the boiler and at this point is divided, each loop as it returns to the boiler supplying the radiators on either side of the building. This method allows of smaller piping for the loops, increases the efficiency by increasing the velocity, and reduces the cost of the work. The main, crossing the center of the basement, pitches upward to the point where it divides, and this point of division is the high point of the main.

The ordinary method of connecting a radiator for this system is shown by Figure 2. The flow is connected from the top of the main and the return is connected into the bottom, common tees being the form of fittings employed in making the connections.

As the hottest water occupies the top of the main and the cooler water the bottom of it, it is advisable to take

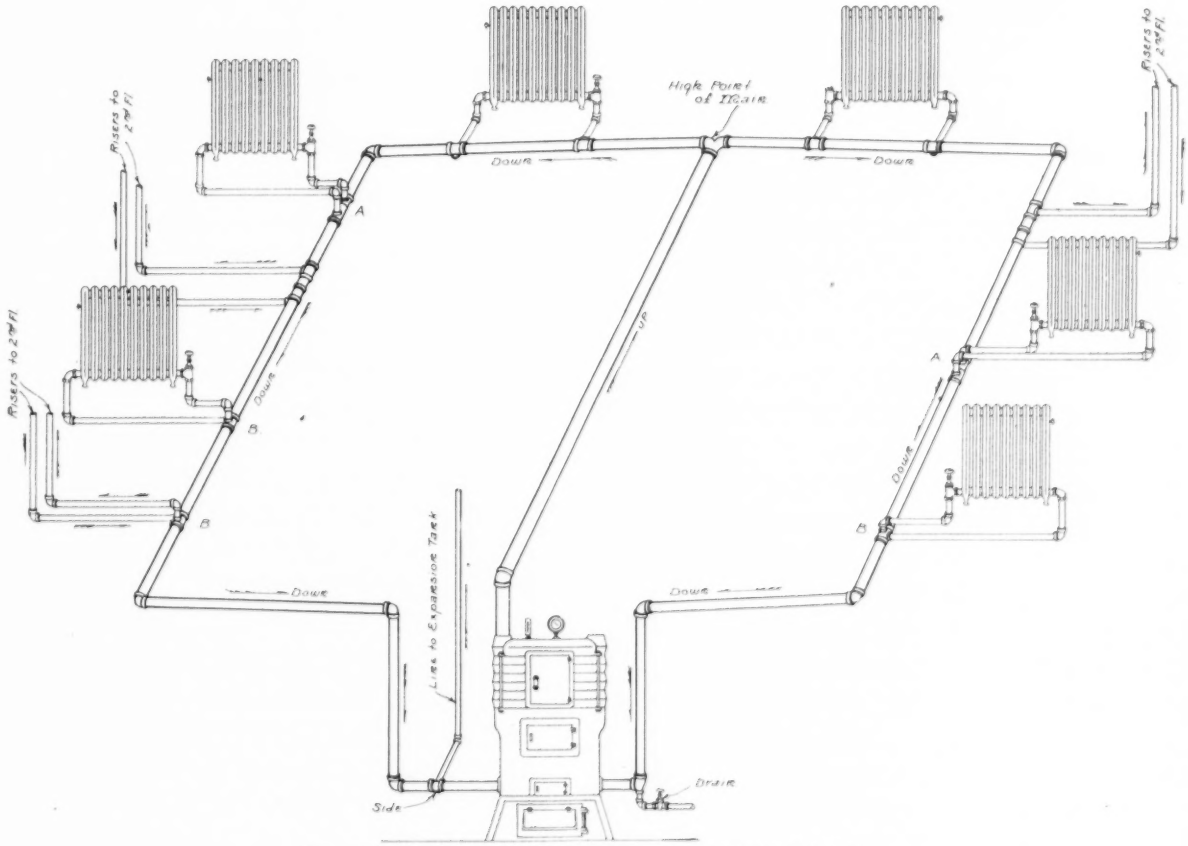


Fig. 1. Showing the One-Pipe System of Hot Water Heating.

the flow from the side of the main for the first radiators supplied. This style of connection allows the hot water at the top of the main to pass these connections without circulating through them; this is a help to the efficiency of the radiators connected further along the loop.

On the illustration, Figure 1, the first radiators supplied are at the end of the building opposite to the boiler and these connections are shown taken from the

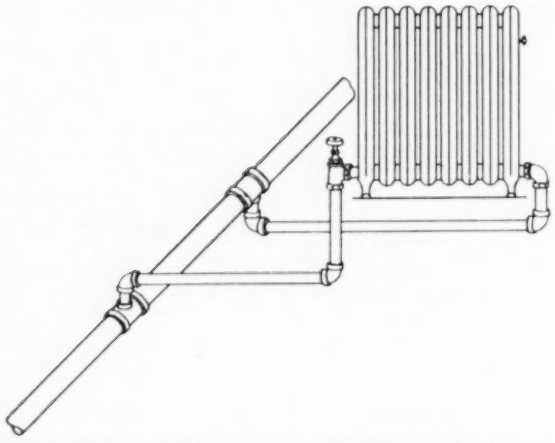


Fig. 2. Ordinary Method of Connecting a Radiator for One-Pipe Hot Water Circulation.

side of the main. Figure 3 shows a detail of a radiator connected in this manner.

As a help towards increasing the efficiency and reducing the cost of the work special fittings may be used on the main in place of ordinary tees. Two of these fittings, which have found favor with the trade, are the "Eureka" fitting shown by Figure 4 and the Phelps "Ideal" fitting shown by Figure 5. The O. S. fitting which is constructed quite the same as the O. S. distributing fitting is also largely used. The fittings marked "A" on the sketch illustrating the single main system are Eureka fittings. Those marked B are the Phelps "Ideal" fittings.

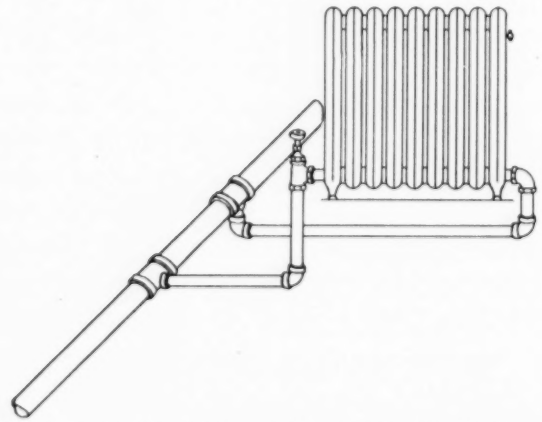


Fig. 3. The First Radiator Supplied Should Be Connected from Side of Main.

The construction of the Eureka fittings is such that both flow and return connections to radiator are made from the top of the fitting, yet the returning circulation enters at the bottom of the main by passing through a hollow or cored compartment of the fitting which encircles the hotter water passing through it. The opening from this compartment being at the bottom of the fitting the return circulation joins the cooler water at this point. The Ideal fitting as shown by Figure 5 is in the form of a tee with two side outlets. When placed on a main in a horizontal position one opening is at the top and the other is at the side in the form of an eccentric outlet, from the side of the bottom of the fitting, which is used for the return connection.

The high point of the piping for a single circuit job should be directly above the boiler. For a divided circuit job as illustrated by Figure 1 the high point may be directly over the boiler or at the point where the flow is divided into separate loops. If the main is of considerable length we prefer to pitch it upward from the boiler to point where it is divided, and thus allow each loop to pitch toward the boiler. This is the method followed in piping the job illustrated.

The expansion tank may be connected from the high point of the main or it may be connected from the return as it enters the boiler. The former method is preferred on a single loop job as we believe the system is more readily freed of air by this method. The latter method is shown on Figure 1 as we think the expansion tank connection can be made in a better manner and more direct from the return at the boiler. The expansion tank

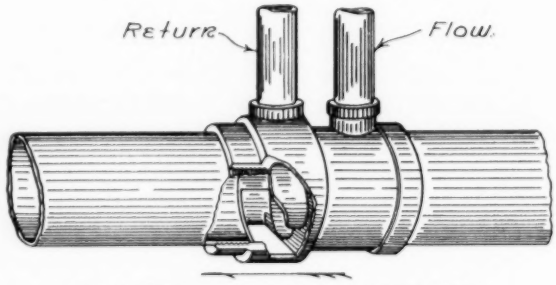


Fig. 4. The Eureka Fitting for One Pipe Work.

connections, such as the vent and overflow, may be made in the usual manner. If it is desired to circulate the water in the expansion tank to prevent freezing when it is placed in a cold room or attic, the expansion line from the top of the main should act as the flow or circulating pipe and should connect into the side of the tank. The return connection should be made from the bottom of the tank and after dropping to basement it should be connected into the bottom of the main a short distance beyond the point where the expansion pipe connection is made or it may be connected to return at bottom of boiler. Figure 6 illustrates the latter method.

The radiator connections for a single main job are made in the same manner as for any hot water system. For the first radiators supplied it is good practice to employ smaller piping for the branches than for radiators of equal size further along the line, the theory being that the water is cooler and the radiator therefore requires a supply branch of larger area and for this reason the radiators which receive the circulation last should be somewhat larger in proportion than those first supplied from the main.

The size of the main for one-pipe work is a somewhat debatable question. Heating engineers do not seem to fully agree as to the area required for any certain size of job. Of course, circumstances largely govern the size of main required. Such circumstances as the length of it, the number of radiators supplied, and consequently the number of tees or fittings employed are items which in-

crease the friction and decrease the velocity of the circulation. These and other factors condition the size necessary. We have found the following sizes to give good service for mains of ordinary length:

Sq. Ft. of Rad'n. Supplied.	Size of Main Required.
200 to 250 Sq. Ft.	2 inch
300 to 450 Sq. Ft.	2½ inch
500 to 700 Sq. Ft.	3 inch
750 to 900 Sq. Ft.	3½ inch
1,000 to 1,200 Sq. Ft.	4 inch
1,350 to 1,500 Sq. Ft.	4½ inch
1,600 to 1,800 Sq. Ft.	5 inch
2,000 to 2,500 Sq. Ft.	6 inch

If this table is employed with ordinary good judgment we believe the sizes given will prove satisfactory for efficient and economical service.

When an indirect hot water radiator or a radiator in basement below the level of the hot water main is to be connected to a loop or single main system the flow to same should be taken from a riser to a second or upper floor radiator in the form of a drop supply pipe and the return from the radiator should run along the wall or across the floor to the boiler.

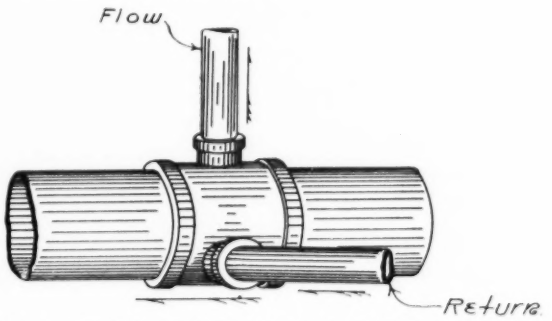


Fig. 5. The Phelps "Ideal" Fitting As Applied in a Hot Water Main.

The method is illustrated by Figure 7 which shows a wall radiator in the basement connected in this manner. An Ideal fitting is shown on the main supplying the branch to riser and radiator, and this branch, and the riser it feeds, should be of sufficient size to serve both the upper and the basement radiators. The flow branch, of course, may also be taken from a Eureka fitting or an ordinary tee.

By connecting a basement radiator in this manner the weight of water in the supply above the radiator will produce a rapid and positive circulation of the water through it making it as effective as though located at some point above the main piping system.

THAWING FROZEN WATER SERVICE PIPE UNDER DIFFICULTIES.

Editor "Domestic Engineering":—When attempting to thaw out frozen service pipes we often hear the plumber complain because he cannot get his rubber hose in far enough, seldom more than 15 to 20 feet, 25 feet at the most, 20 feet being usually the limit in an ordinary ⅝-inch or ¾-inch lead service, which is undoubtedly due to friction, the pipe being more or less kinked in the ground. Ramming grease into the pipe is often resorted to, but the benefit derived from it is considerable since the steam, when turned on, washes the grease right back out of the pipe. Had the plumber been able to get the steam in another 15 or 20 feet, the results might have been different, the job would have been done, and to his credit, but the mysterious electrican is now called in to finish the job, the plumber failing because he did not apply his grease in the right direction. Right here in our city a gas and electric corporation keeps on hand a staff of men trained in the handling of the electricians thawing paraphernalia, ready to go out and grab work, which the plumber is always anxiously looking forward to. The writer obtained satisfactory results in thawing out a ⅝-inch lead service, which was frozen up some 65 feet from the house, my point of operation. My employer had me make a can holding about 3 gallons of water, soldering the tube for the hose, a 4-inch trap screw and a safety valve into the top of it. My attempt at thawing met with the usual results getting about 20 feet of tubing into the ⅝-inch service. I had used about one gallon of water and being stuck I thought about putting lard inside of my can instead of ramming it into the pipe. My scheme worked like a charm, the hose, slipping into the 60 feet of frozen service with practically no effort.

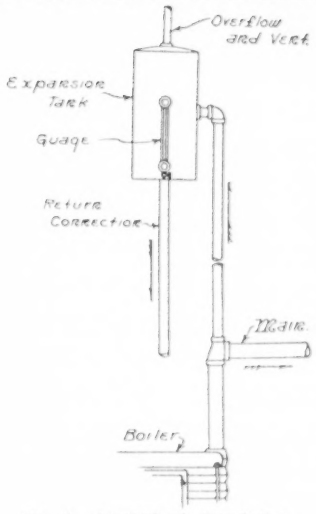


Fig. 6. Method of Circulating Water in Tank to Prevent Freezing.

Denver, Colo. Gus N. Nelson.

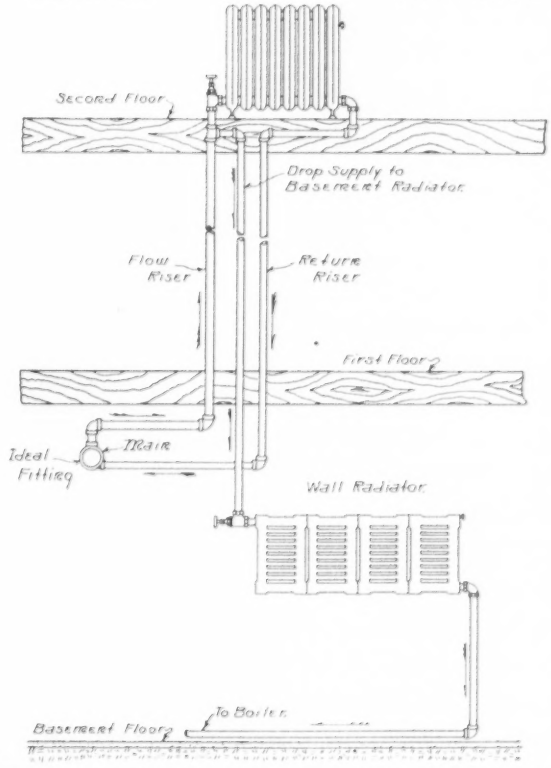


Fig. 7. Showing Method of Connecting to Basement Radiators.

Plumbing and Heating in L. C. Smith Building

Interesting Facts About the Largest Office Building on the Pacific Coast. Work Done by the Rautman Plumbing & Heating Company

ONE of the largest office buildings on the Pacific Coast is now about half completed; the L. C. Smith building at Seattle, Washington, is the tallest building in the West, being forty-two stories in height and costing over $1,000,000. It contains about 600 offices, there being twenty-seven on each floor of the main building and five on each floor of the tower.

The contract for the plumbing, heating and ventilation is held by the Rautman Plumbing & Heating Co., of Seattle, and amounts to approximately $150,000. It will require three freight cars to deliver the plumbing goods

Superintendent A. E. Ayers Inspecting the Steam Mains on the 21st Floor.

alone. The installation of plumbing fixtures alone requires 568 lavatories of one size and 44 lavatories 20x25 in., forty-eight closets with 9-gallon tanks; sixty-four closets with 8-gallon tanks; twenty batteries of two each urinals with 6-gallon tanks, seven urinals with 3-gallon vitreous tanks; seven special 20x24 lavatories and three manicure tables for the barber shop; thirty-one drinking fountains and thirty-one slop sinks.

Four car loads of fittings alone will be required; all pipe is wrought iron, making approximately eight car loads and a total length of practically 100,000 ft.

The Durham System of drainage is used and is a circulation job.

On the thirty-eighth floor is to be installed a steel water tank 12x16 feet, the water to be pumped to this by two 4½x8-in. double acting triplex power pumps, each pump having a capacity of 50 gallons of water per minute against a total head of 453 ft. Each pump will be operated by one 10-H. P. 240-volt D. C. electric motor and will be automatically controlled.

The Heating Plant.

Two water tube boilers, one approximately 260 H. P. and the other 300 H. P. will be required to heat the building. There will be approximately 40,000 sq. ft. of steam radiation.

The building is piped for an overhead down-feed system for the main building and an up-feed system for the tower. The main riser for the main building is 12 in. in diameter and that for the tower is 7 in., being run separately from the boiler headers. All fittings above 7 in. are flanged.

A Warren Webster system of steam circulation is used for heating purposes.

All steam pipes, plumbing pipes, stacks, duct work and smoke breeching are covered with 85 per cent magnesia covering, comprising a total of 38,000 feet or three car loads.

The interior of the building will be absolutely fireproof. The finish of offices will be in bronze and mahogany. The hallways are to be paneled to the roof with Alaskan marble of the white vein variety.

Each office will be equipped with a lavatory and each floor will have two toilets.

The entire building over all will be 465 feet high, 236 feet of which is the main building, and 239 feet the tower. It will have a basement over the entire area, including the width of the sidewalk.

There will be eight passenger elevators in the building and one freight elevator; two of the passenger elevators extending up to the thirty-fifth story. The first two floors of the building will be used for stores, there being six stores on the main floor, two cable offices, a buffet and cafe in the sub-basement.

The cafe will be one of the most elaborate in finish and decoration in the West.

The top floor of the building will have an observatory and balcony for sight-seers.

The floor construction throughout will be composed of 4-inch gravel concrete slabs reinforced with wire mesh.

The foundation rests on 1,276 concrete piles of an average length of twenty feet, driven through a soil composed of gravel, sand and clay. The foundations have been proportioned for a load of 5,500 pounds a square foot.

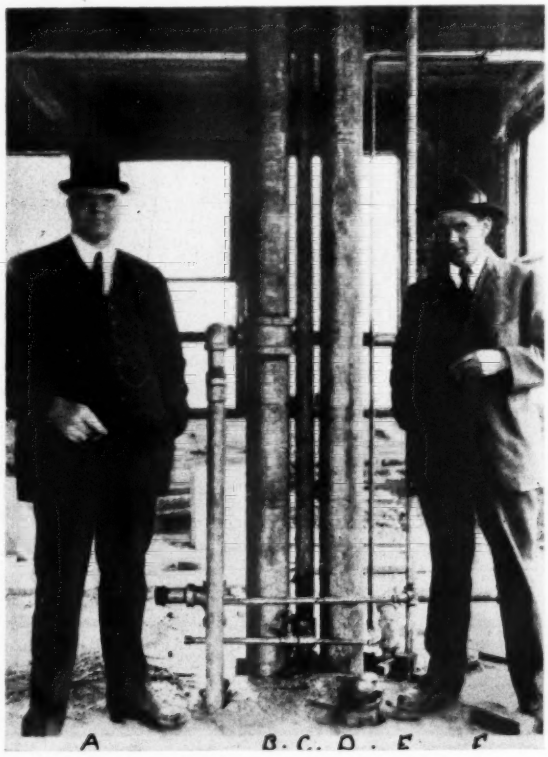
In all buildings the height of the Smith building, wind is as much and more a factor than any other, and provision has been made for the enormous pressure of thirty pounds to the square foot. Rigidity against wind stress is given to the building by means of a continuous belt of 30-in. wall girders running around the entire building and around the courts from the first to the tenth floor inclusive.

From the tenth to the twenty-second floor this belt of wind girders is used around the area bounded by the tower above. From the twenty-second to the forty-second this girder construction is used around all four walls.

The Contractors.

The Rautman Plumbing & Heating Co. is one of the largest in this line on the Pacific Coast. It was estab-

lished in 1889 by F. E. Rautman and his brother, and was consolidated with the Seattle Heating & Plumbing Co. in 1912. F. E. Rautman is president and treasurer, A. E. Ayers is vice-president and superintendent of heating, and C. A. Davis is secretary and superintendent of plumbing.



A. E. Ayers, Superintendent of Heating, and C. A. Davis, Superintendent of Plumbing, photographed on the 22nd floor of the L. C. Smith Building. The vent pipe is the large one at the left, the other large one taking care of the waste from above. Between them is the cold water supply, and back of Mr. Davis' arm is the hot water supply.

The entire organization has done over four millions of business in this line in Seattle and vicinity up to the present time.

TAKES ISSUE WITH NEW YORK SO-CALLED EXPERTS.

Contention That There Are Too Many Plumbing Inspectors in New York City Does Not Secure Endorsement of Chicago Men.

The finance committee of the New York City Council has recently received a report by a body of municipal research experts on the local health bureau and its departments. The report praises the general work of the bureau, but in some respects criticises its methods.

In the sanitary department of the health bureau the experts declare that there are too many plumbing inspectors. The report in this regard goes on to say:

"The maintenance of the division of plumbing and house drainage inspectors cannot be said to constitute any important part in health control. Former theories as to the role of sewer gas in the production of disease have been abandoned by sanitarians and the modern health department, and does not include plumbing inspection as a health function. Since in Pittsburgh plumbing inspection is included in health service, its efficiency has been studied with a view of reducing the cost of this division to the minimum necessary for proper service. Twelve plumbing inspectors are now employed on duties which could be efficiently handled by eight. Twenty-eight per cent of the time of twelve inspectors is spent in clerical work and office assignments, although clerks can be employed at $600 to $800 a year, while plumbing inspectors are paid $1,500. The examination of plumbers for plumbers' certificates is so carelessly conducted that a passing mark may be easily obtained through fraudulent methods. The same questions have been given at each examination for the past two years. No practical tests of a plumber's ability are given. The necessity for so frequent and rigid plumbing inspection in cities would be largely obviated if plumbers were required to demonstrate their competency before being licensed. Functions now assumed by the division of plumbing inspection could be performed legally and with greater economy by other divisions. The bureau of building inspection could as well find out whether or not plumbing permits have been issued and the duplication of this work by plumbing inspectors discontinued. Complaints relating to plumbing inspected by the tenement house division are identical with those inspected by the plumbing division. The tenement house division is better organized for the investigation of plumbing complaints."

Officials of the Chicago department of health, when shown the report of the Gotham experts, took immediate issue with the spirit and letter of their findings. Chief Sanitary Inspector Chas. B. Ball declared that the maintenance of a division of plumbing inspectors is and always will be an important part in health control. He also said that the New York experts' statement that sewer gas does not play a large part in the production of disease was erroneous.

Assistant Inspector Thomas Claffy, of the Sanitary Bureau of Chicago, in criticising the New York report, said: "The hard-working research gentlemen in New York practically say in their report that plumbing inspectors are useless and not wanted, and they suggest that the building inspectors should take over their duties. I think these research chaps are in the main talking through their hats. The modern plumbing inspector is a trained sanitarian from A to Z. Regarding the duplication of work by plumbing inspectors and building inspectors, I will say that the plumbing inspector is no more duplicating the work of the building inspector than a shoemaker is duplicating the work of a blacksmith.

"The experts also undervalue the question of sewer gas dangers. Admitting, however, that there is or is not danger of infection from bacteria in sewers, the fact remains that bacilli are to be found in sewage and sewer air. The fact also remains that gas exists in sewers, whether it be from gas mains or decomposing animals and vegetable wastes, matters not; it exists, and we know by experience that the breathing of sewer air from an open soil-pipe or waste opening will soon cause headaches, nausea, etc.

Innumerable instances may be cited in support of the statement that gas from sewers or sewer air causes illness, and other innumerable instances may be further cited to prove that the water seal in traps in plumbing systems designed to keep such air and gas out of houses and buildings has been lost by evaporation, syphonage or air compression. We have our own experience to prove that there is at all times an element of danger in sewer gas and sewer air."

January 13, 14 and 15, 1914.—The annual convention of the Iowa Master Plumbers' Association, at Keokuk, Iowa. The officers of the association are: President, A. B. McCarten, Dubuque; vice-president, Wm. O. Ewinger, Burlington; treasurer, W. D. Hogan, Sioux City; secretary, R. A. Ellis, Waterloo; organizing secretary, R. E. Knauer, Des Moines, Iowa.

January 19 and 20, 1914.—The annual convention of the Missouri State Association of Master Plumbers, at St. Louis, Mo. The officers of the association are: President, George A. Wood, Springfield, Mo.; secretary, C. L. Smith, 2408 East Twelfth Street, Kansas City, Mo.

January 27, 28 and 29, 1914.—The twenty-second annual convention of the Illinois Master Plumbers' State Association, at Rock Island, Ill. The officers of the association are: President, W. J. Hilliard, Elmhurst; first vice-president, C. D. Brownell, Champaign; second vice-president, John L. Robertson, Mason City; treasurer, O. W. Dawson, Decatur; secretary, W. C. Haviland, Coulter Block, Aurora, Ill.

February 17, 18 and 19, 1914.—The twenty-third annual convention of the Ohio Master Plumbers' State Association, at Cincinnati, with headquarters at the New Gibson House. The officers of the association are: President, F. W. Sponseller, Canton; vice-president, James A. Wood, Toledo; secretary-treasurer, Eb. Ellen, Cleveland.

March 9, 10 and 11, 1914.—Annual convention of the Indiana State Association of Master Plumbers, at Lafayette, Ind. The officers of the association are: President, Wm. J. Woolley, Evansville; vice-president, Joseph G. Hayes, Indianapolis; secretary-treasurer, A. E. Werkhoff, Lafayette, Ind.

April 21 and 22, 1914.—Annual convention of the Pennsylvania State Association of Master Plumbers, at York, Pa. The officers of the association are: President, D. F. Durkin, Philadelphia; vice-presidents, George W. Palmer, Lemoyne; Robert Purse, Johnstown; E. D. Swoyer, Allentown; treasurer, John H. Birchall, Allentown; secretary Harry L. Righter, 5424 Germantown Avenue, Philadelphia.

WHEN PHILADELPHIA MASTER PLUMBERS DISCUSS OVERHEAD EXPENSE.

At a recent meeting of the Philadelphia Association of Master Plumbers, the topic of "Overhead Expense," was taken up and discussed at length. It was the third meeting devoted to the consideration of that important subject. The value of following up the topic in the trade papers was pointed out by many of the members present.

According to Robert H. Pflug-Felder, secretary of the Philadelphia local, one of the boys called out: "Supposing you don't read 'Domestic Engineering'?" At this remark, a half dozen members sang out, "Subscribe for it, you chump."

Mr. Pflug-Felder in a recent letter in which he comments on the helpfulness of trade papers to the master plumber, says: "'Domestic Engineering' is getting to be 'some paper.' I hope you will continue printing such matter as has been appearing for the last few months."

FOX RIVER VALLEY MASTER PLUMBERS' MEETING.

The regular meeting of the Fox River Valley Benevolent and Social Club, composed of master plumbers of eight cities in the Fox River Valley, was held at Depere, Wis., on Tuesday, December 9th. President J. Geo. Mueller, of Oshkosh, called the meeting to order at 3:30 p. m. The attendance was good, 25 members answering to the roll call. The afternoon was spent in a social way, and some very interesting talks were given on subjects for the advancement of the master plumber and of bettering conditions of the trade in a general way. At seven o'clock dinner was served in the dining room of the California house, after which the visitors departed for their respective homes satisfied that a very successful and beneficial meeting was held. The next meeting will be held in Fond du Lac on the second Tuesday of February, 1914.

A very unique and unexpected entertainment was afforded the visitors. It was an exhibition of a Volunteer Fire Department turnout and fire fighting. A gasoline lighting tank exploded in a large grocery store, entailing a loss of several thousand dollars, before the fire was finally controlled. After the alarm was turned in to see the different teamsters unhitch and race their teams to the hose cart and fire engine and then see them take a hand at fighting the fire was a sight that most of the visitors have not witnessed probably since their childhood days, and don't expect to see again very soon. All the loyal citizens jumped in and helped, and we might mention right here that several of the plumbers got busy, especially John McCoy of Fond du Lac. He was right in the thick of it, for when he returned to resume his duties as secretary it was noticed that his hair had been slightly singed, although he denies it.

ANNUAL BEEFSTEAK PARTY OF BRONX MASTER PLUMBERS A GREAT SUCCESS.

Over one hundred and fifty members and guests of the Bronx Master Plumbers' Association attended the annual beefsteak party of that progressive local on Saturday evening, December 6th, at the Washington Hall, 497 East 166th Street, New York City.

It was a genial and congenial gathering of master plumbers, their wives, daughters, sweethearts, and other friends, who sat down at the festive board to do justice to the tender and juicy rounds of steak.

Everybody enjoyed the occasion. The talent furnished by the entertainment committee for the evening was of high-grade caliber, in fact, par excellence.

Short and witty addresses were delivered by the Hon. William J. Flynn and the Hon. Peter Schwickert. The Committee on Arrangements, who, through their untiring efforts made the affair, the most successful ever held by the local association, was composed of the following gentlemen: John J. Foley, Stephen Welch and Henry Saltzmann.

Among those present at the gathering were: Mr. and Mrs. C. J. Gleason, Mr. and Mrs. M. D. Kennedy, Mr. and Mrs. S. G. Arnone, Mr. and Mrs. David Durie, Mr. and Mrs. Geo. P. Engeldrum, Hon. and Mrs. Wm. J. Flynn, Mr. and Mrs. John J. Foley, Mr. and Mrs. Frank Harbeck, Mr. and Mrs. Ossin Johnson, Mr. and Mrs. George Jung, Mr. and Mrs. Martin Klett, Mr. and Mrs. George Knauss, Mr. and Mrs. Wm. Kroeppke, Mr. and Mrs. Samuel Minskoff, Mr. and Mrs. Thomas Moffet, Mr. and Mrs. Jacob Muller, Mr. and Mrs. Otto Ozab, An-

thony Polzello, Mr. and Mrs. Fred Reihm, Mr. and Mrs. John Richman, Joseph Rowan, Mr. and Mrs. Henry Saltzmann, Henry Rudolph, Mr. and Mrs. George Smith, Mr. and Mrs. Herman Schmidt, Hon. Peter Schwickert, Mr. and Mrs. Joseph Theiss, Mr. and Mrs. Albert Dischell, Mr. and Mrs. Fred Weber, James Griffle and the three Misses Griffle, Frank Hill, Thomas Byrnes, Asa Crookston and A. Flossheim.

THE ANNUAL BALL OF THE MASTER PLUMBERS IN KANSAS CITY, MO.

The third annual ball given Monday evening, November 24th, at Assembly Hall, 33rd and Troost Avenue, Kansas City, Mo., by the Woman's Auxiliary and the Association of Master Plumbers of that city, was an unqualified success, and the good time provided will long be remembered by all who had the privilege of attending. The orchestra was one of the best in the city and the beautiful strains of music, including all the latest and best music was heartily applauded. The smooth surface of the floor, with its assemblage of well-dressed men and beautifully gowned women, presented an unusually beautiful sight. The beautiful Moonlight Waltz and the "Plumber's Dream" were very spectacular and elicited much applause. The committee in charge under the able chairmanship of Wm. Whitsel, is to be highly congratulated on the successful outcome of its faithful efforts. The weather was evidently made for the occasion, and the evening closed with unanimous expressions of enjoyment and appreciation of the most brilliant social event of the season in the ranks of the master plumbers of Kansas City.

PITTSBURGH MASTER PLUMBERS' ANNUAL RECEPTION.

The Master Plumbers' Association of the Greater Pittsburgh (Pa.) district is bound to have its membership get "better acquainted" in a social way, and in an effort to start something in this direction, the first annual reception was given Tuesday evening, December 9th. Between two hundred and three hundred master plumbers of the Greater Pittsburgh district, their wives and sweethearts gathered in the Central Turnverein at Thackeray and O'Hara Streets, Oakland, at a dance and euchre party. The music was furnished by the Sheridan Sabres Orchestra. About five or six years ago the local Master Plumbers gave a similar event. The proposition has been revived, and the success of the event of Tuesday night was so great, that it has been decided to give a series of these reception during the winter season. Master plumbers and their ladies from this district, and as far east as Greensburg, Pa., and as far down the Ohio Valley as Beaver Falls attended. The event was staged upon an elaborate scale, and a most pleasant evening was passed.

PUBLIC COMFORT STATIONS.

The city council of Seattle, Wash., has appropriated $25,000 for the construction of two public comfort stations, one at Westlake Avenue and Pine Street, and the other at Madison Street and Third Avenue.

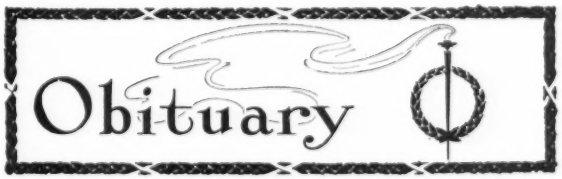
The proposition to erect a number of comfort stations in Columbus, O., has again been revived by the club women of the city. It is planned to have a change made in the resolution of the Ohio legislature passed several years ago authorizing the use of the state house grounds for the comfort station. It is claimed the resolution was not drawn properly.

Cleveland, O.—The Silver Plumbing and Hardware Co., of this city, has been incorporated with a capital stock of $10,000. The incorporators are: Eugene Baker, D. Klosheim, F. Allen, J. W. Ulmer and J. M. Bernstein.

Buffalo, N. Y.—Federal Heating Co., of this city, has been incorporated with a capital of $15,000, to conduct a heating business. The incorporators are: George C. Fox, Jeremiah A. Sullivan and Julius A. Schreiber, all of this city.

Cincinnati, O.—The Bohmer-Fletcher Co., of this city, has been incorporated with a capital stock of $10,000 to carry on a general plumbing business. The incorporators are Joseph Bohmer, James B. Fletcher, Walter Benson, L. Nolan and G. A. Ginter.

Elmira, N. Y.—The Hogg-Lynn-Snyder Co., of this city has been incorporated with a capital of $30,000, to conduct a plumbing, heating and gasfitting business. The incorporators are: William McDougall, James E. Mannis and Fred L. Hogg, of 120 Horner Street.



Thomas Davidson.

Thomas Davidson, formerly a well-known master plumber of Winchester, Mass., died last week in Beachmont, Mass., where he had made his home for some time.

Henry R. Boyle.

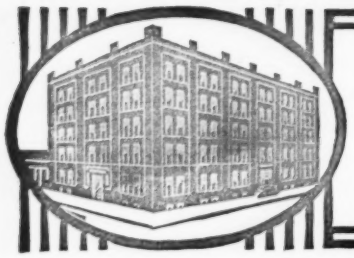
Henry R. Boyle, who has been associated with his brother, Thomas P. Boyle, in the plumbing business at 802 Fulton Street, Brooklyn, N. Y., died at his home in that city on Thursday, December 4th, in his 53rd year.

Thomas E. Weber.

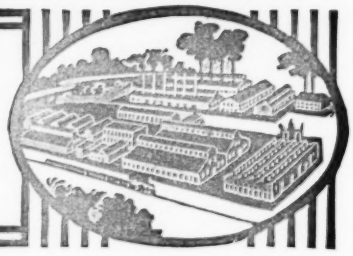
Thomas E. Weber, who conducted a plumbing business in Reading, Pa., for many years, died at his home in that city on Tuesday, December 2, in his 75th year, after several months' illness. He formulated the plumbing ordinance for Reading and he was also that city's first plumbing inspector. He was a veteran of the Civil War and prominent in Masonic circles. His wife, a son and a daughter survive him.

Farley Foster Crown.

Farley Foster Crown, formerly in the plumbing business at Brattleboro, Vt., died at his home in that city last week in his 64th year. He had been a resident of Brattleboro for 21 years. He was born in Fayston, Vt. In company with Patrick Fleming he established a plumbing business at Brattleboro under the firm name of Fleming & Crown, which they conducted with success for a number of years. Later he entered real estate business in which he was engaged until shortly before his death.



Among the Wholesalers and Manufacturers



HAS INCREASED ITS CAPITAL STOCK.

The Standard Seamless Tube Manufacturing Co., of Pittsburgh, Pa., has filed notice of increase of its capital stock to $1,200,000.

MOVING FACTORY FROM ELYRIA, O., TO NEWARK, N. J.

The Pressed Asbestos Products Co., of 11 Broadway, New York City, is moving its factory from Elyria, O., to 310 Market Street, Newark, N. J.

THE REGAR BRASS MFG. CO. INCREASES CAPITAL STOCK.

The Regar Brass Manufacturing Co., of Cleveland, O., has filed papers with the secretary of state certifying to an increase in its capital stock from $40,000 to $100,000.

CREDITORS FILE PETITION AGAINST P. F. HOWARD CO.

A creditors' petition in bankruptcy has been filed against the P. F. Howard Co., jobbers in plumbing and heating supplies, at Oakland, Cal. One of the creditors filed a claim of $23,468 against the company.

FIRE CAUSES NO INTERRUPTION IN BUSINESS.

The manufacturing plant of the Climax Sanitary Co. at 274-290 Wight Street, Detroit, Mich., was damaged by fire on November 21st, but owing to the fact that a duplicate stock is carried at the plant of the Sherwood Brass Co., on Jefferson Street in that city, no delay was experienced in filling orders.

ESTABLISH HANDSOME SHOWROOMS IN BOSTON.

The Standard Sanitary Manufacturing Co., of Pittsburgh, Pa., has established handsome new showrooms and offices in Boston, Mass., under the supervision of Robert E. Sargent. They are located on the ground floor of the John Hancock Building, Devonshire Street. A new warehouse 70x220 feet has been provided in South Boston.

THE A. HAMBACH CO. AWARDS CONTRACTS FOR NEW BUILDING.

The A. Hambach Co., jobber of plumbing and heating supplies at Seattle, Wash., has just awarded the contract for the construction of a seven-story reinforced steel and concrete building at the corner of First Avenue South and King Street in that city. The plans for the building were prepared by Architects Saunder & Lawton, of Seattle, and it will cost in the neighborhood of $125,000.

THE DECEMBER MEETING OF THE NEW YORK CHAPTER OF THE A. S. H. & V. E.

The regular monthly meeting of the New York Chapter of the American Society of Heating and Ventilating Engineers will be held on Monday evening, December 15th, in the Engineering Societies Building, New York City. The topic of the meeting will be "Heating, Ventilating and Drying of Printing Establishments." The paper of the evening will be presented by Walter S. Timmis and the discussion will be opened by J. I. Lyle.

THE JOSEPH A. VOGEL CO. ENLARGES ITS PLANT.

The Joseph A. Vogel Co., of Wilmington, Del., manufacturers of the "Vogel" frost-proof closets, is still adding to its realty holdings in that city, due to its growing business. The company has just bought 60,000 square feet of ground opposite its present plant on Lombard Street. This gives the concern a total of 100,000 square feet of ground area. Among other improvements now being made is the construction of a warehouse, 100x50 feet, and a new building, 30x50 feet, to be utilized for a foundry. Hereafter the company will make all its own castings.

CONVENTION OF TRADE ASSOCIATIONS, MANUFACTURERS AND EDITORS OF TRADE PAPERS.

Over 300 of the leading manufacturers, importers, merchants and trade press editors, representing practically every industry of the United States, met in convention, at the Hotel Astor, New York, on November 21. It was called by the National Registration League and a committee of the Federation of Trade Press Associations.

Robert W. Nelson, president of the American Type Founders Company, was elected chairman, and J. Clyde Oswald, of the American Printer, vice-chairman of the National Registration League. S. M. Weatherly was elected secretary of the league, with headquarters at 1309 Race Street, Philadelphia, Pa. E. W. Bradford, of Washington, D. C., was elected general counsel.

The entire proceedings of the convention comprised vigorous protests by the delegates against the piracy of valuable commercial designs and urged the enactment of a Federal law for the registration of designs for manufactured products.

Manufacturers, advertising leaders from important trade houses, patent lawyers and representatives in general of varied manufacturing industries, voiced their protests at the convention against the prevalent practice of design piracy. Some declared that the copying or counterfeiting

of their original designs has seriously endangered the progress of original American productions and the industries as well, while others asserted that design piracy amounted to nothing but "plain theft," "unfair trade and competition," which should be prevented by law.

DECEMBER MEETING OF THE ILLINOIS CHAPTER, A. S. OF H. & V. E.

The feature of the December meeting of the Illinois Chapter, which was held at the Great Northern Hotel fraternity room, on the evening of December 8th, was a debate on the subject of "Forced Circulation of Hot Water vs. Direct Steam Vacuum Heating for Industrial Plants."

The committee in support of Vacuum Steam Heating was made up of E. B. Gordon, chairman; W. A. Green and John D. Small. The committee who held up the end of Forced Hot Water Heating was composed of R. A. Widdicombe, chairman; W. R. Graves and August Kehm, although Mr. Kehm was unable to be present at the meeting. As has been the custom at previous meetings of this sort, the members in attendance were divided into two contesting sides, one-half supporting each committee. The discussion was a spirited one, and was of noticeable educational interest. The fact that points of value of both systems of heating for particular installations were brought out, sharpened the wits of every member present. It was amusing to see advocates of one class of heating being forced to testify in favor of the other side, because of their accidental presence on the side of the table represented by their real opponents. No decision was made and it seemed to be the consensus of opinion that the two systems under discussion were the best of their kind for installation where the conditions were right for their installation.

In one case reference was made to a large Chicago manufacturing plant where hot water heating had replaced vacuum steam. The opposition showed that another plant of the same company was using vacuum steam.

The report of the ventilation commission was made by James H. Davis. He pointed out that experiments in ventilation were to be made during the coming months by means of a cabinet which was being built large enough to be occupied by one person, in which tests were to be made to bring out various facts concerning present-day ventilation methods and failures. Tests will also be made in moving picture theaters, both while unoccupied and occupied. The commission also expects to make tests on various ozone machines now on the market. This society voted $50 as an appropriation to aid in carrying on these experiments, as the ventilation commission is a voluntary one without other means than those contributed.

The society entertained as a visitor, J. F. Tuttle, manager of the Chicago office of Warren Webster & Co.

The following members were in attendance:

W. L. Bronaugh, E. F. Capron, E. J. Claffy, Jas. H. Davis, Frank J. Douglass, E. B. Gordon, Jr., W. B. Graves, Wm. A. Green, H. M. Hart, R. B. Hayward, C. W. Johnson, Geo. H. Kirk, F. W. Lamb, Wm. Lees, N. L. Patterson, John D. Small, J. M. Stannard, R. A. Widdicombe, Harry de Joannis, Chas. J. Jackson, Wm. E. Marquam, L. L. Narowetz, R. M. Stackhouse, J. E. Truitt and H. K. Lees.

Four new members were received, E. J. Claffy, Harry M. Nacey and Frank J. Douglass as active members, and Wm. E. Marquam as an associate.

THE NEW MUELLER BUILDING IN NEW YORK CITY.

The Eastern Division of the H. Mueller Mfg. Co., of Decatur, Ill., is about to move from 254 Canal Street to the new Mueller Building at 145-149 West 30th Street, New York City. The company will occupy the entire

The H. Mueller Mfg. Co.'s New Building in New York City.

lower floor and basement of this handsome 12-story fireproof building. The new quarters of the company will be fitted up for the concern, and will be most conveniently arranged for handling its business. The new location is very desirable because of its nearness to the railway terminals and proximity to hotels and business. The H. Mueller Mfg. Co. established an Eastern Division ten years ago at 254 Canal Street. The increasing business has long since called for more room and a more convenient location. This will all be acquired in the Mueller Building at 145-149 West 30th Street. This division of the company is under the direction of O. B. Mueller, whose assistant is H. M. Flemming. The company hopes to be completely established in the new quarters by the first of the year.

LOCAL MATERIALS AND LABOR ON GOVERNMENT CONTRACTS.

From the Supervising Architect's Office, Treasury Department, Washington, D. C., we have just received the following letter concerning "Local Materials and Labor On Government Work," addressed to "To Whom It May Concern," and which will no doubt prove of interest to many of our readers:

"The department is frequently requested to include in its specifications for the construction, etc., of federal buildings the requirement that the successful bidder for the work shall use a particular material, fixture, appliance,

or method, or that certain of the materials and labor to be used in the construction of the building must be obtained in the localities in which they are to be erected. The department is compelled to deny these requests for the following reasons:

"The law requires that proposals for the construction of federal buildings shall be solicited by public advertisement unless the public exigencies require the immediate delivery of the articles or performance of the services sought to be obtained. The obvious purpose of the law is to secure through broad competition the lowest terms obtainable. This object would be defeated if bidders were restricted to the products of any particular State or locality, or if the bidding were similarly restricted to residents of any particular section of the country.

"The department always declines to indicate by name or brand the particular materials, fixtures, appliances, methods, etc., to be used, but specifies the grade of both materials and labor. Bidders are free to procure these anywhere obtainable, provided they meet the specification's requirements.

"Nothing in the specifications for the different buildings prevents local contractors from bidding on the work. Nor is there ever anything in the department's specifications which would prohibit a successful bidder residing elsewhere from obtaining his materials or labor from the manufacturers or dealers and the artisans of the locality in which the proposed building is situated, provided the specification requirements, as to quality, etc., are met.

"The department is always gratified whenever local materials and labor are found to answer its requirements, but it cannot undertake to restrict competition by limiting bidders to local materials and labor. Whenever the department has information concerning an available local stone or face brick, it endeavors to draw its specifications so that proposals may be submitted on these materials, but cannot do so to the exclusion of materials of the same class produced elsewhere.

"Those interested in the development of local industries or the employment of local labor are always free to bring the same to the attention of the successful bidder for a particular federal building. Whenever materials, etc., the use of which it is sought to have the department specify or require, are submitted for approval by a contractor for a federal building, they are invariably given due consideration."

E. F. Glore has resigned as general manager of sales for the Richardson & Boynton Co., of New York City, and accepted a position with the New York office of the Autocar Co., of Ardmore, Pa., manufacturers of automobile trucks. Mr. Glore has been connected with the heating trade in the East for many years. He was at one time manager of the Philadelphia branch of the American Radiator Co. Later he formed the Glore Supply Co. in Philadelphia and acted as its president until he became manager of the Philadelphia office of the Richardson & Boynton Co., a position he held until a year ago, when he was promoted to the position of general manager of sales at the company's general offices in New York City. Mr. Glore's many friends in the heating trade will wish him success in his new work.

Robert Vessey, of the Paragon Brass Mfg. Co., of Cleveland, O., left this week on his regular northern trip into Canada. He was accompanied by his wife. They expect to spend several weeks in Canada and will return through New York State.

J. M. Peeples, eastern manager of sales for the Crown Die & Tool Co., of Chicago, with office in New York City, is making preparations to return to his home in Chicago for the holiday season, after an absence of six months.

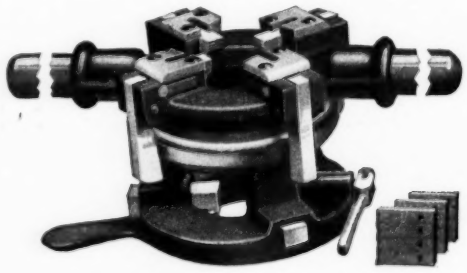
W. E. Edwards, who has been identified with the sale of plumbers' brass goods for the past three or four years, has recently accepted a position with the Cleveland Flush Meter Co. of Cleveland, O., as traveling representative. He is at present calling on the trade in Ohio and Pennsylvania.

C. B. Segner, sales manager of the Domestic Engine & Pump Co., of Shippensburg, Pa., was in Chicago the early part of this week calling on the trade for his line of pumping and power gasoline engines. Mr. Segner will have completed a trip of several weeks before he reaches home at Christmas time, having covered the large supply houses in the middle west in the interests of his line.

E. E. Bush, who was, until very recently, general manager and chief engineer for the Allen Construction Co., of Washington Court House, O., has disposed of his interest in that concern and connected himself with the Bishop-Babcock-Becker Co., of Cleveland O., as traveling engineer. Mr. Bush will make his headquarters at the New York office and look after business in the central eastern states.

THE BECKER-RECEDING PIPE THREADER.

The Handy Manufacturing Co., of 200 Cannon Street, Bridgeport, Conn., has recently placed on the market a new device for cutting pipe threads under the name of the Becker-Receding pipe threader. To overcome friction in threading pipe this device has been constructed on



The Becker-Receding Pipe Threader.

the roller-bearing principle by a combination of the roller nose lever and floating ring movement. The narrow dies rest against the roller nose lever and, as the floating ring movement is drawn nearer to the top of the tool, it permits the lever to roll backwards and the dies follow the roller so as to produce a perfect taper thread with minimum friction. The dies, the roller nose lever and the chuck jaws are made of crucible steel, hardened and drawn. The levers are marked with thread standards so that standard as well as deep or shallow threads can be cut with exactness. The entire body of the stock, the work holder and the die holder is made of the best grade malleable iron, the manufacturers state, and no cast iron is used in its construction. This means that no part of the

tool will break or crack. The range of the device is from ½ to 2 inches. Complete information can be obtained by interested readers from the manufacturers upon application, mentioning this magazine.

A "FAULTLESS" RYCO BASIN COCK.

J. J. Ryan & Co., of 103 South Jefferson Street, Chicago, have just issued a very attractive catalog, entitled the "Ryco Booklet," illustrating and describing the "Faultless" Ryco self-closing basin cocks, one of which is shown

The "Faultless" Ryco Self-Closing Basin Cock.

herewith. These faucets adopt themselves equally well to high or low pressure without pounding or hammering. They have few working parts, smooth body and round corners, are sanitary and easily cleaned, and they are furnished in nickel-plated brass or silver bronze. Interested parties are invited to write for the above-mentioned booklet, which will be sent promptly on request, mentioning "Domestic Engineering."

THE "MINNEAPOLIS" HEAT REGULATOR.

The Minneapolis Heat Regulator Co., of Minneapolis, Minn., has just published a singularly attractive twelve-page folder, entitled "The Heart of the Heating Plant," illustrating and describing the "Minneapolis" heat regulator, its construction, action, what it will do and how it is attached. Those who need this information in their business can obtain a copy of this folder on application.

A MESSAGE FROM C. A. DUNHAM CO.

"An Unusual Message" is the title of a large and neat folder issued by the C. A. Dunham Co., of Marshalltown, Iowa, calling the attention of heating engineers and contractors to the special ability of its engineering department to correct bad heating jobs. The company offers to have this department look after any bad heating job proposition and report to the inquirer direct how to go about it to correct the difficulties. It also tells how a sample of the Dunham radiator trap and the Dunham air line valve can be obtained on trial.

Mexia, Tex.—The Mother's Club is making arrangements to have sanitary drinking fountains installed at the public schools in this city.

THE "ROCHESTER" COMPRESSION BATH AND BASIN COCKS.

The Atkinson Co., successors to Clum & Atkinson, of Rochester, N. Y., has just issued a new catalog, entitled "Rochester Compression Bath and Basin Cocks," illustrating and describing this company's line of plumbers' brass goods. This company has for a number of years been making soldering nipples and unions, boiler couplings, soldering bushings, brass unions and floor drains for the

The "Rochester" Low-Down Compression Basin Cock.

plumbing trade, but its line of compression bath and basin cocks has been placed on the market during the present year. The accompanying illustration, taken from this catalog, shows the "Rochester" low-down compression basin cock, with China index handle, without stuffing box, and the company has also just brought out another basin cock of the same pattern except that it has a stuffing-box and a slightly longer stem to accommodate the stuffing box. The designs of this line of compression work are new and clean cut, and sharp lines have been avoided. Readers interested in plumbers' brass goods can obtain a copy of this catalog upon request, mentioning "Domestic Engineering."

PUMPING ENGINES FOR WATER SUPPLY.

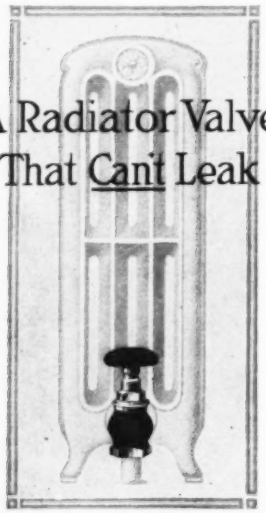
Nearly every master plumber, especially if located in a small town or city, is interested in the sale of water supply systems for country and suburban homes. The home owner of today is not satisfied with primitive methods—he must have up-to-date equipment.

Never before has the demand for high grade pumping equipment been so persistent. The pumping engines, driven by gasoline, as manufactured by the Domestic Engine and Pump Co., Shippensburg, Pa., have long ago demonstrated their worth. They are today bringing many satisfied customers to dealers who have once introduced them. You should know about them—the manufacturers will no doubt, send you catalog and discounts if you mention "Domestic Engineering."

St. Louis, Mo.—The Sodeman Heating Co., of this city, has secured the contract for the installation of a heating and ventilating system in the new Bloom school at Cincinnati, O. Consideration $30,887.

ABOUT DETROIT LUBRICATOR CO'S. RADIATOR VALVES.

The accompanying illustration shows the attractive front cover design of an exceedingly neat booklet just issued by the Detroit Lubricator Co., of Detroit, Mich., describing and illustrating in detail the Detroit Packless radiator valves. The manufacturers state that these valves are tight and stay tight, their efficiency being guaranteed by the most careful workmanship on accurate machines, checked up by rigid inspection and searching tests. The painstaking processes employed in their production give what is known in shop parlance as "watchmaking accuracy." In addition to this efficiency these valves have a pleasing appearance, symmetrically proportioned with a smooth satin finish. The highly finished mahogany handles of these valves are protected from damage by a cloth bag, which is not removed until after installation and the completion of decorating, and they are large, easy-turning, nicely proportioned and of the right size and shape for a satisfactory grip without danger of burning the hand by its coming in contact with hot metal, and there is no recess in top to collect dirt. Parties interested in radiator valves can obtain this booklet from the manufacturers upon application, mentioning "Domestic Engineering."



Front Cover Design of Detroit Lubricator Co.'s New Booklet.

The Metal Market

More Inquiry for Pig Iron.

Consumers are not in the least frightened, but observing the rapid decrease in production and the fair amount of consumption, they believe that it is well to have stocks of fair size on hand. For this reason more than any other, two advances in quotation have been noted during the week, both for Southern foundry No. 2, one of 50c, raising the price to $11 Birmingham, and another of like amount raising the price to $14.25 at Cincinnati. All grades of foundry iron are very firm, but basic is slightly cheaper and so is gray forge, both in the Pittsburgh market. Several consumers in New Jersey purchased fair amounts, and Buffalo furnaces were able to dispose of quite a large tonnage, not only in New York, but in New England. The figures compiled by a trade authority showed that the total production in November was 2,233,000 tons, a falling off compared with the preceding month of 300,000, and a reduction from the high figure of the year of fully 600,000 tons. This is the smallest production in any month since February, 1912, and it is likewise the smallest rate of production. Prices of steel seem to have touched bottom in several important centers, and while they are not as low as they were in 1911, it is conceded on all sides that the higher quotations for labor have made a difference in the cost of pig iron of practically $1 per ton. It is easily to be seen, too, that no reduction can be made in the wages of labor until conditions become far more serious than they have been. In several important quarters the situation seems to be much better. Quotations are as follows:

No. 1 Northern Foundry, New York	$15.25 to $15.50
No. 2X Northern Foundry, New York	14.75 to 15.25
No. 2 Southern Foundry, Cincinnati	14.25 to 14.75
No. 2 Northern Foundry, Cincinnati	14.75 to 15.25
No. 2 Southern Foundry, Birmingham	11.00 to 11.50
No. 2 Northern Foundry, Chicago	14.75 to 15.00

A Dull Copper Market.

Prices of copper have been reduced steadily week by week and quotations as low as 14.62½ cents have been made to consumers, who refused to buy even at these attractive figures. The leading producer has not made anything like as low a quotation, but probably would make a similar quotation if there was any likelihood of a large tonnage being disposed of. Not only are American consumers out of the market for the time being, but foreign melters are not buying in any quantity. The statistics of the Copper Producers' Association, compiled on Monday of this week, showed that stocks had increased during the month 15,000,000 lbs., even though production was below normal. It is true that the stocks on hand are smaller, with two or three exceptions, than at any time in the last five years, but that is past history. Stocks are now being accumulated and will grow month by month for some time. Even the shutdown of several lake mines has had little effect on sentiment. It would not be surprising, however, if some good buying should develop around 14 cents.

Tin.

The market is steady, although American consumers refuse to come in and buy, and concessions have been offered, but did not attract business. Sales have been made in large lots as low as 38.50 cents New York.

Lead.

The American Smelting & Refining Co. has made two important reductions in the price of lead, bringing the quotation in New York down to 4.10 cents and in St. Louis to 3.95. At these figures not much new business developed.

Spelter.

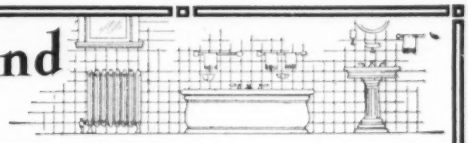
The market in spelter is lower at 5.15 cents New York.

Old Metals.

New York dealers' buying prices are:

Light copper	$11.00 to $11.25
Strictly crucible copper	12.25 to 12.50
Uncrucibled copper wire	11.75 to 12.25
Uncrucibled heavy copper	11.75 to 12.25
Cocks and faucets	8.75 to 9.00
Clean red car boxes	9.25 to 9.50
Light brass	6.25 to 6.50
Heavy yellow brass	7.25 to 7.50
Heavy lead	3.70 to 3.80
Tea lead	3.40 to 3.50

Among the Plumbing and Heating Contractors



Illinois

Chicago.

Noble & Thumm, 2313 Lincoln Avenue, will install the plumbing and heating system in a large apartment building to be erected at 1341 Elmdale Avenue.

The plumbing systems on three dwellings to be built at 6941-43, 7013 South Ashland Avenue, will be put in by Byrne Bros., 72 W. Adams Street.

J. J. McGarry, of 4307 Congress Street, will install the plumbing in a two-flat building to be constructed at 4832 West Jackson Street, for F. A. Brown, of 4135 Gladys Avenue.

F. C. Haussman, 229 N. Ashland Avenue, has recently secured the contract for plumbing a factory to be built at Park and Campbell Avenues for Illinois Felt Co., 2851 Lake Street.

The contract for plumbing a residence, to be erected at 4523 Campbell Avenue, has been awarded to H. P. Bartel, of 1025 North Kedvale Avenue.

William Gawne, jr., 5812 Madison Street, has recently secured the contract for plumbing a cottage to be built at 1035 St. Claire Avenue.

The plumbing system for a warehouse to be erected at 168-170 North Green Street, will be installed by Verity Bros., 810 West Lake Street, for Fred Rentz, 172 North Green Street.

J. J. Daly, of 1325 West 63rd Street, has been awarded the contract for plumbing a warehouse and office to be constructed at 1331 South Michigan Avenue.

The plumbing on a hospital to be erected at 741 Diversey Parkway, will be installed by Nelson Bros., 1463 Belmont Avenue, for the German-American Hospital, Dr. H. J. Haiselden, 731 Diversey Parkway.

David Walsh, 6828 South Chicago Avenue, has recently been awarded the plumbing contract on a building comprising stores and offices, to be erected at 7855-57 Cottage Grove Avenue.

The contract for plumbing a flat building, to be constructed at 1214-18 Farley Avenue, has been awarded to William Mallow, 4343 Lincoln Avenue.

E. C. Oakes, 3418 Fullerton Avenue, will install the plumbing in a two-flat building to be erected at 5504 West Monroe Street.

The contract for plumbing a macaroni factory, to be built at 2148 South Canalport Avenue, has been given to George Hauslein, 1616 Fullerton Avenue.

H. J. Schaefer, 6138 North Clark Street, will install the plumbing system in a two-flat building to be put up at 4822 North Kaskaskia Avenue.

The contract for installing the heating system in a three flat building to be erected at 2307 Giddings Street, has recently been awarded to George Henricke, 5536 Broadway.

The Robinson Furnace Co., 65 W. Lake Street, will install the heating equipment in a two-story flat building soon to be erected at 1040 North Leclaire Avenue.

The heating system for a warehouse and offices to be built at 1331 South Michigan Avenue, will be put in by Sam Kersten of 554 West Jackson Boulevard.

John A. Duha has moved his plumbing, heating and gas-fitting establishment to 3332 Irving Park Boulevard, Chicago.

Michigan

Detroit.

Ross & Wood have been awarded the contract for plumbing and heating the brick floral shop and flat in course of erection on Woodward Avenue, near Leicester Court, for M. G. Paterson.

Donald Miller & Co., of 280 Brush Street, will install both the heating and plumbing in the building at 92 Gratiot Avenue which is undergoing alterations.

Every business man has a hobby, and plumbers are no exception to the rule. In the case of Edward J. Ryan, 119 Grand River Avenue, bowling is his great pastime. Mr. Ryan is a member of the "Bacheler" Club, and whenever he isn't entertaining friends in his cozy apartment located over his shop, you can find him at one of the bowling alleys, throwing the balls and thoroughly enjoying life. Mr. Ryan's average is around the 180 mark. He has a team called "Ryans Plumbers" which bowls once a week in a league composed of twelve other teams.

George H. Soffel Co. has moved from the Dime Bank Building to 323 Jefferson Avenue where it is equipped to do anything from putting in a washer on a kitchen spigot to the fitting up of a modern skyscraper. This office is in charge of A. J. Slonaker, for the past eight years located with the Soffel Co. in Pittsburg. At the present time, the Soffel Co. has 10 large contracts on hand in this city, the biggest of which are the Kresge Building, the Stevenson Hotel on Davenport Avenue and the R. C. Gavin Building.

Architect Albert Kahn is taking figures for the erection of a brick and reinforced club house on Madison Avenue for the Detroit Athletic Club. Bids close December 23rd. The building will cost close to a million dollars, and will be one of the finest institutions of its kind in the entire country.

The Detroit Master Plumbers' Association will hold its annual meeting on January 8th at which new officers will be elected for the ensuing year. There will be an unusually large turnout of members at this meeting.

W. H. Trombley, 290 Clay Avenue, a young and progressive plumber in the northeast section of town, is the latest addition to the membership in the local master plumbers' organization.

Ernst Bros., 35 Bagg Street, have secured the contract to install the plumbing in the new eight-story building being erected on Cadillac Square for Gregory, Mayer & Thom Co.

Smith, Hinchman & Grylls, architects of Detroit, have been selected by the state board of education to draw plans for a new auditorium which is to be built in Ypsilanti for the Normal School there, at a cost of nearly

$150,000 and with a seating capacity of 2,300. Plans will be drawn at once and the work started in the spring, so as to be ready for the opening of school in the fall of 1914.

Daniel W. Smith, president of the Peter Smith Heater Co., is having plans prepared for a $60,000 residence on Jefferson Avenue, near Seyburn Avenue. It will be two stories in height, and be one of the finest homes in that aristocratic neighborhood.

Other Cities In The State.

A. F. Vollette has engaged in the plumbing business at 1355 Lake Drive Avenue, Grand Rapids.

Architect H. W. Pipp, of Ann Arbor, is preparing plans for a new building for the Times-News of that city, which will cost approximately $40,000 and be devoted exclusively to printing and publishing. He expects to have all plans completed by January 1st.

Thomas L. Lambourne, sales manager of the Wolverine Brass Work, Grand Rapids, Wis., was the principal speaker at a meeting of the Grand Rapids Credit Mens' Association, held Tuesday evening, December 2nd, and attended by over two hundred members. "A plea for more harmonious relations between the two vital forces in modern business" was the "meat" of his remarks. One of the Grand Rapids' papers in commenting on his address said: "To Mr. Lambourne was assigned the heavy oratorical burden of the occasion, and the salesman's address to the credit men won him a triple X rating, both as a banquet speaker and supporter of good business methods. His subject was announced as "The Credit Man and the Sales Department; the Necessity of Co-operation," and he not only convinced his hearers of the desirability, but the necessity of united endeavors in merchandising."

Charles Deneau has opened a plumbing business in Delton.

Fred M. Keller, secretary of the State Board of Education, Lansing, will receive bids up to noon, December 24th, for the construction of a science building at the Central Michigan Normal School at Mt. Pleasant. E. W. Arnold, of Battle Creek, is the architect. Mr. Keller will also receive bids at the same time for the construction of a science building to be erected at Kalamazoo.

Ohio

Columbus.—Master plumbers and steam-fitters are very much interested in the new employes' compensation law which will become effective January 1, 1914, when all employers of labor who have five on the payroll must contribute to the state fund for the protection of their employes. The law enacted at the last session of the Ohio General Assembly. There is some opposition to the law as it places an additional burden upon master plumbers and other employers of labor. Governor Cox has assured employers that several defects in the law will be corrected during the extraordinary session of the Ohio legislature.

Cleveland.—To construct the new West Side filtration plant and provide new equipment for the old Division Street pumping station the city will issue $2,000,000 worth of water bonds in January if a recommendation, to be made by Supt. C. F. Schultz of the water department, is adopted. Work on the sewage disposal plant will also be pushed. To carry on the improvement $500,000 worth of bonds must be sold, according to Sanitary Engineer R. W. Pratt.

Fremont.—Plumbers in this city have been notified that politics will not cut any figure in naming the city plumbing inspector under the new city ordinance. The city administration will demand that the inspector be a competent person for the position.

Coshocton.—The South Side sewer question will be taken up early in the spring. The state board of health has not fully approved the plans submitted for a new sewer outlet into the Muskingum River, contending that the plans can not be approved until a sewage disposal plant is built.

Youngstown.—The ordinance for the issuance of $200,000 bonds for the erection of a new pumping station has been adopted by the city council. The plans for the building which will be erected on the south side of the river have been approved.

Lima.—The National Concrete Fireproofing Co., of Cleveland, has been awarded the contract for the installation of water supply system for the Lima State Hospital.

Delphos.—L. H. Buskirk, a representative of the state board of health has been investigating conditions in Jennings Creek, north of Delphos where pollution is said to exist. The city council has authorized an engineer to draw plans for settling beds to stop the alleged pollution.

Logan.—There is a great scarcity of dwelling houses in this city and steps are being taken to supply the deficiency at once. The dearth of houses is caused by the large number of new families which have moved into the city.

Fostoria.—A committee of citizens of this city is investigating the feasibility of repairing and cleaning up the local sewage disposal plant. This plant was erected about fourteen years ago and the state board of health is insisting upon having it repaired and modernized.

Kentucky

Louisville and Vicinity.

The handsome new building of the Southern Motors Co., on Third Street, near Chestnut, in Louisville, which is one of the largest in the South devoted exclusively to the automobile business, gave several Louisville contractors the opportunity to handle some exceptionally nice work. Haller & Zehnder installed the plumbing, air-pipe fitting and overhead automobile washers, and the low-pressure heating system which covers the entire building was furnished by F. A. Clegg & Co. Mr. Clegg is recovering rapidly from his recent operation, and expects to be in full possession of his former health within a short time.

An apartment building containing four five-room apartments, which will be equipped with modern plumbing and heating systems, will be built in Lexington, Ky., by the Combs Lumber Co.

Samuel K. Baird, county judge of Spencer county, Ky., will receive bids until December 17th for the construction of a new courthouse at Taylorsville, Ky., which is to be provided with a modern steam heating plant. The building will be of brick and concrete.

Berry Allen Green, who is connected with the plumbing firm of M. Coulson & Co., Paducah, Ky., was one of the four young people of that city who were married recently, the brides being sisters, and the ceremonies being performed at their residence within half an hour of each other.

Ed D. Hannan, one of the leading plumbers of Paducah and Western Kentucky, had the satisfaction of being in-

formed recently, through one of the papers in that city, that his good work in his trade has been appreciated. Mr. Hannan has handled a large number of the big jobs of plumbing installed in Paducah in recent years, not to mention a good share of the small ones.

J. D. Thomas, of Marion, Ky., will remodel a building which he recently purchased, for the purpose of fitting it up as a moving picture theater. Improvements will cost about $5,000. Hot-water heating will be installed.

Pennsylvania

Pittsburgh and Vicinity.

The past week developed some additional new work on the boards of the local architects which will soon be ready for plumbing and heating contractors to go over. While work this season is not as strong as it was during the summer months, yet there appears to be more or less activity among the larger contractors.

Separate bids are to be taken for the plumbing and steam heating that is to be installed in the First National Bank Building at Freeport, Pa. Architects Vrydaugh & Wolfe, of 347 Fifth Avenue, Pittsburgh, have the plans in hand.

Subbids for plumbing and steam heating for the $80,000 theatre building being erected at Uniontown, Pa., by Charles L. Gorley, are to be taken. The specifications are now ready for distribution.

Smith & Hafer, of Warren, Pa., are asking for bids on plumbing and heating for the new Methodist Episcopal church being erected there.

Low-pressure steam heating will be a feature of the new building to be built in the East End by the Atlantic Refining Co. The steam heating and plumbing and lighting contract have not yet been let.

Among the contracts awarded the plumbing and heating contractors in this district of late are the following:

The Bartley-Kennedy Co. will do the heating work in the $35,000 church being built at McKeesport, Pa., by the Zion Evangelical Lutheran congregation.

Heating contracts in six residences being erected in Pittsburgh by S. L. Teemer of McKeesport, Pa., have been awarded to G. F. Hoggins, of this city.

Peter Schlegel, who is building an $18,000 residence has awarded the contract for the heating work to the McGinnis Smith Co., of Twenty-second Street, Pittsburgh.

S. E. Hopper, a plumber at Crafton, Pa., has secured the contract for the plumbing work in two double residences being erected in Carnegie, Pa., for T. H. McFarland.

Regan & Hornell, of Charleroi, Pa., will do the heating work in the $15,000 club house being built in that town by the Italia Unita Club.

Plumbing work in four residences being built here by Daniel Makrauer, will be done by Moss & Blakeley.

The Monessen Plumbing Co. has received the contract for the plumbing work in the $6,000 residence being erected by A. R. Wilson at Monessen.

J. B. Milliken, who is erecting a $15,000 store building and apartment in Bellevue, has awarded the contract for the plumbing work to J. McKissock & Son, of that town.

Plumbing in a $4,800 duplex residence being built by William Watkins, at Monessen, Pa., will be done by the Monessen Plumbing Co.

Work is progressing rapidly upon the erection of the new buildings being erected in Erie, Pa., for the Standard Manufacturing Co., of this city.

The Stinson-Kennedy Co., of this city, has been awarded the contract for the plumbing to be installed in the new convent being built in Knoxville, Pittsburgh, which is owned by St. Canice R. C. Congregation.

F. E. Markell, who is erecting a $15,000 residence at Connellsville, Pa., has awarded both heating and plumbing contracts to William Sellers, of Connellsville.

W. N. Barnhart, of Pitcairn, has been awarded the heating contract in the $4,000 residence being built by George Craven at Trafford City, Pa.

Heating work in five residences being erected by J. H. Diming, at Pittsburgh, has been awarded to J. F. Matter, of 118 Oakland Avenue.

George M. Soffel & Co., of Pittsburgh, will do the plumbing in the $20,000 residence being built at Edgeworth by T. McKee Graham of this city.

Mrs. O. M. Johns, who is building a $30,000 mercantile building in Pittsburgh, has awarded all heating work therein to Hendler & Lang, of this city.

A device to prevent water hammer and reaction in pipes has been invented by Robert Stinson, of Stinson, Kennedy & Company, of Pittsburgh. Mr. Stinson has installed his device on various jobs recently and it is equalizing the water pressure and doing away with the nuisance of water hammer.

The Civic club of Allegheny county has chosen the universal mark for comfort stations adopted by the American Society of Inspectors of Plumbing and Sanitary Engineers. These marks will be put on all stations in the city and county.

Public Works Director William Y. English, who was secretary of the Sterling Sanitary Mfg. Co. before his appointment to office last month, has had his abilities put to a severe test by the explosion that wrecked nearly a mile of the 9-foot sewer in the Bloomfield district. Mr. English, who is only 36 years old, was appointed November 17th and within ten days was called upon to cope with a situation, the like of which none of his predecessors ever encountered. The new director has handled the situation creditably, showing a complete knowledge of the requirements and displaying no hesitation in proceeding expeditiously with the emergency work. Although Director English is to serve only until January 1 when he resigns to take his seat in the council, he is going ahead with his big task as earnestly as if he were going to see the job through, personally.

Philadelphia and Vicinity.

The Master Plumbers' Association of Philadelphia has been holding "overflow meetings" during the last few months. The commodious quarters at the Builders' Exchange where its meetings are held could hardly accommodate the large number of members who attended the meetings in November and December, over 200 members being present at the December meeting. Another remarkable feature is the fact that nearly seventy new members were admitted to membership at this one meeting. As published in "Domestic Engineering" the Philadelphia Association has for some months past been conducting a series of discussions on educational topics based on introductory papers read by its secretary, which have created great interest. The association has also raised its initiation fee for membership from $5 to $25 in addition to which the widespread interest caused by the "housing bill" affecting cities of the first class in the state of Pennsylvania has helped to awaken the master plumbers to the wisdom of attending association meetings. Philadelphia is to be congratulated on such a showing. The

association at its meeting last week re-nominated the following officers for 1914: President, E. F. Roberts; secretary, R. H. Pflug-Felder; treasurer, H. B. Lentz.

H. T. Campbell, of 29th and Stiles Streets has been awarded the plumbing and heating contract in the property at 1213 North 28th Street. Consideration, $1,400.

J. A. Neagle, of 5622 Germantown Avenue, is installing new heating systems in the property at 216-18 West Duval Street, for the J. A. Trower Estate. Consideration, $1,125.

Kriebel & Co., of Eighth and Spring Garden Streets, are installing a new heating system in a new residence at 1516 North 15th Street, for Dr. Kohn. Consideration, $2,000.

H. Goldner, of Fifth Street and Lehigh Avenue, is installing plumbing and heating in the new theater for the Victor Amusement Co., at 2811 Mascher Street. Consideration, $2,500.

C. F. Bachler has been awarded the plumbing and heating contract in the property at 1621 Spruce Street, for Dr. P. B. Bland. Consideration, $1,950.

F. P. Speth, of 3531 North Fifth Street, is installing new plumbing in the property at 1509 Spring Garden Street.

H. Lutz & Co., of No. 16th Street, has been awarded the contract to install plumbing and heating in the property at the corner of Seventeenth and Race Streets for G. W. Lasher.

J. J. Mulhern, of 3625 Haverford Avenue, has been awarded the contract to install new plumbing in a bungalow at Sea Isle City, N. J.

H. A. Shafer, Jenkintown, Pa., has been awarded the contract for plumbing the new Abingdon Hospital, Abingdon, Pa.

R. J. Elliot, 2105 West Third Street, Chester, Pa., has just opened an elaborate show-room in his own new building and would be pleased to receive catalogues from jobbers and manufacturers of plumbing goods.

Maryland

Baltimore.

An ordinance allowing property owners discretion as to the location of vent pipes to be installed in connection with the new sewerage system has been reported to the first branch of the city council by the committee on health and it is believed that it will pass. The new ordinance nullifies a recent regulation of the health commissioner requiring the pipes to be placed on the inside when new house connections are made with the sewers. It was substituted for an ordinance that required the pipes to be placed on the outside in all cases. The new measure stipulates that pipes now on the outside shall remain undisturbed. It is said to be unsatisfactory to the health commissioner and the Builders' Exchange, which upholds the health commissioner's contention that the pipes should be on the inside.

J. A. Steinmetz has removed his plumbing business from the corner of Fayette and Paca Streets to 113 North Paca Street.

Julius C. Wohler has opened a plumbing establishment at 2240 Frederick Avenue.

E. J. Murphy has opened a plumbing and heating establishment at 1442 North Carey Street.

J. H. Sellman has opened a branch of his plumbing business at 3106 Greenmount Avenue.

Charles E. Krauss has opened a new plumbing establishment at 3212 Greenmount Avenue.

E. J. McCann, formerly with the Wells & Newton Co., plumbing and heating engineers, has opened a plumbing business at 405 West Thirty-sixth Street, Hampden.

New York

John McCarron, who conducts a plumbing business at 915 Sixth Avenue, New York City, is seriously ill at his home. Mr. McCarron is a charter member of the Manhattan Branch of the New York Master Plumbers' Association, and he was very active in association work attending all the earlier conventions of the National Association.

New Rochelle.—This city is taking bids for the construction of a public bath house, to be erected at Hudson Park, at a cost of $80,000.

Buffalo.—E. L. Cook & Smith, of 199 Pearl Street, have a good contract on hand, in that of the plumbing installation in the new $100,000 country residence of Ed. Michael, at Derby, N. Y. Nine bath rooms are being equipped and the work when completed will aggregate $8,000.

Buffalo.—Geo. H. Drake, president of the Buffalo Association of Master Plumbers, has just erected an imposing structure at 218 Lexington Avenue. The ground floor will be utilized for his plumbing business, while the remainder of the building will be leased for apartment purposes.

Massachusetts

Springfield.—Samuel House has recently installed heating systems at 1054 North Street, for A. Gelfman; at 40 Church Street, for T. J. Curtin; in a house in Agawam, for E. D. Preston; in a house in West Springfield, for F. W. Michalek; in a house on Seventh Street, for A. Miller, and he has several other similar contracts in hand.

Clinton.—The Lancaster Mills Corporation has placed a contract with O'Toole Bros., to install steam heating plants, hot water, bath tubs and other modern conveniences in the corporation's tenement houses on Chestnut Street. There are fifteen houses and the work will cost several thousand dollars. It will be started at once. Similar improvements are also to be made in the so-called Dudley House on Cameron Street, owned by the corporation and used as a boarding house for French operatives.

Boston.—Architect J. Pickering Putnam talked on "Plumbing Legislation" at the December meeting of the Boston Society of Architects held at the Parker House on Tuesday, December 2. About thirty members of the society were present.

Boston.—William C. H. McAllister, a plumber of New Bedford, Mass., has filed a petition in bankruptcy in the United States court here. His liabilities are scheduled at $1,042.

Whitman.—John T. Warsaw, inspector of plumbing for the town of Weymouth and Rockland, has been appointed plumbing inspector of Whitman for a three-year term. Mr. Warsaw will receive $420 from this town. He receives a similar salary from Rockland and $600 from Weymouth. Mr. Warsaw's home is in this town.

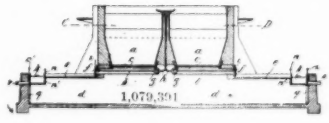
North Brookfield.—In a list of eligible bachelors published by an enterprising local newspaper the names of Henry and Patrick Collins, who conduct a plumbing establishment on Main Street, are given prominent mention.

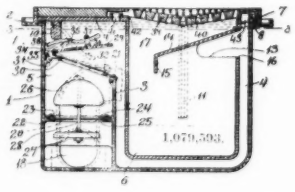
Patents

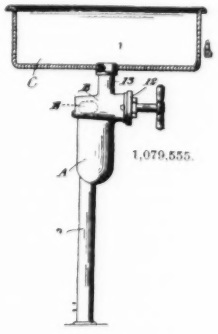
Plumbing Department.

1,079,391. Apparatus for Purifying Sewage and the Like. Paul Bunzel, Cothen, Germany. The combination with apparatus for purifying sewage and the like having a plurality of settling troughs open below and sludge discharge conduits beneath said troughs, of valves intermediate the conduits and troughs for cutting off said conduits from said troughs, a removable end cover for the discharge end of said conduits and means for supplying water to said conduits after the sludge has been discharged and the end covers replaced and before said valves are re-opened.

1,079,593. Floor-drain Trap. John J. Donovan, Dorchester, Mass. A drainage trap comprising an outer member having its ultimate outlet at a level above its bottom, an inner member contained in said outer member to a depth lower than said outlet, having an opening in its top, which constitutes the only inlet to the trap, and also having a lateral outlet, and obstructing means between the side walls of the inner and outer members located between the outlets of the two members and extending from a point higher than such outlets to a point lower than both outlets, but above the bottom of the outer member.







1,079,555. Flushing Device. Charles Hopewell, Ottawa, Ontario, Canada. In a device of the class described, and in combination, a casing having an inlet adapted to be connected to a plumbing fixture, a waste outlet, a passage from the inlet to outlet, a ventilating outlet, a flushing water inlet and a valve seat, and a single valve member on the seat controlling the ventilating outlet, the flushing water inlet and the passage of material through the passageway.

1,079,758. Pipe-support. William Beall Gray, Louisville, Ky., assignor to Martin J. Bannon, Louisville, Ky. A device of the character specified, comprising a cradle having in its upper face a substantially rectangular depression and having a rack bar at each side of the depression, extending longitudinally of the cradle, said rack bars being spaced apart from each other, a carriage for the pipe, the upper face of the carriage being concave transversely to fit the insulation of the pipe to be supported and having a central recess, said carriage having on its under face a longitudinal central rib and a series of gear teeth on each side of the rib, a pair of gear wheels

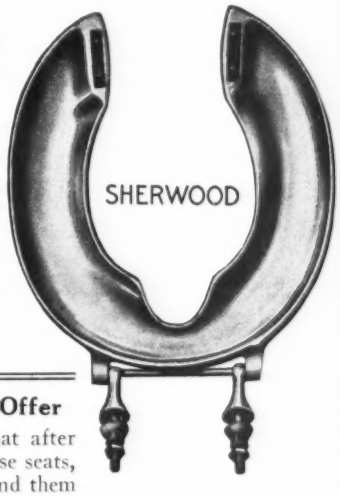
"Sherwood" Polished Aluminum Seats

EVERLASTING

Absolutely Sanitary

The Unqualified Choice of Many Architects and Sanitary Engineers.

We cordially invite every Plumber to write us for prices and descriptive literature.



Introductory Offer

As we know that after you have seen these seats, you will recommend them to all your customers, we will send you via parcel post, one (and only one) seat, at one-half regular price.

Write today, to

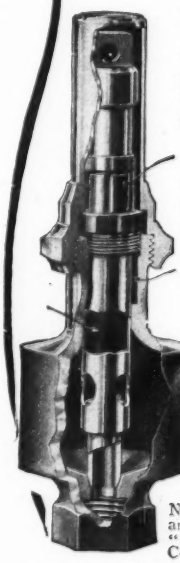
SHERWOOD BRASS WORKS

1167-1175 Jefferson Ave., East

Largest Mfrs. of Aluminum Tanks and Seats in the World

Detroit, Mich.

NATIONAL VALVES



The quality in the National Valves and the stability of the manufacturers behind them has resulted in the utmost satisfaction to the men who install, sell or use them.

The National Valves are simple in operation, low in price—consistent with their quality—and thoroughly efficient in service.

Our Thermostatic Valve for instance has merit all its own. Its brass encased composition prevents it from being buckled or bent. It has many other merits which must be really experienced to be appreciated.

Write for our literature showing why the National line of products is so serviceable and practical. Don't fail to ask about our "B" Heat Intensifier, "B" Pipe Joint Compound, etc.

NATIONAL STEAM SPECIALTY CO.

8-10 S. Clinton St., Chicago

Surpless, Dunn & Co., 74 Murray St., New York

A Few Points in Regard to Brookside

Self-Closing Goods

that every jobber and plumber should know

We use the very best high priced phosphor bronze in our springs that can be bought.

We use the very best, most durable and highest priced Andrew Bell washers, either for hot or cold water. Years of experience have convinced us of their lasting quality.

Every article is carefully tested and inspected.

We guarantee all our goods to give good lasting service and satisfaction, and replace free of charge any item proving defective inside of ten years.

Your copy of our new Catalog is ready—may we send it?

The Brookside Brass Foundry & Manufacturing Co.

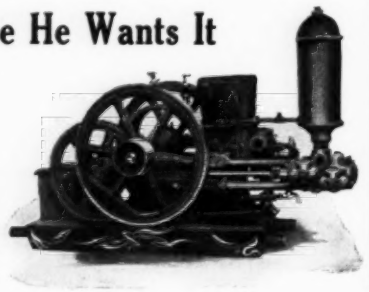
Cleveland, Ohio

Of Course He Wants It

The customer for a water system wants to know about the

Domestic Pumping Engine.

Your opportunity to sell him should not be neglected. Write for catalog.



Domestic Engine & Pump Co., Shippensburg, Pa.

Dad Says,

he wonders if August of this year will hereafter be known in Canada as the time of the big Thaw. Dad says no sale of his Pipe Hanger has ever been a frost, because it's equal to the best at less than half the price, and if you don't find it so, you can return it and he'll pay the freight both ways.

If your jobber cannot supply you, write us

D. A. DONOVAN

AUBURN, N. Y.

The MURDOCK "Bubble-Font"

A Practical Out-Door Drinking Device

It's not a fancy drinking fountain that gives you more trouble than it's worth after it's installed. It's built for service of the roughest kind.

Anti-Freezing—Self-Closing —Non-Pollutable

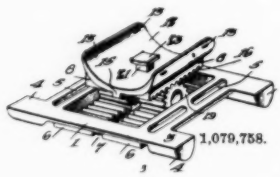
Just the thing to stand the wear and tear of a school yard, public street, park, etc. Always "on the job," winter as well as summer because it is anti-freezing.

Send for our descriptive booklet giving full information

The Murdock Mfg.&Supply Co.

Cincinnati, Ohio

arranged between the carriage and the cradle, each wheel meshing with a rack bar and with the adjacent series of teeth on the carriage, the rib of the carriage extending between the wheels, a rigid connection between the wheels, and a block seated in the recess and extending above the carriage a distance corresponding to the thickness of the insulation on the pipe.



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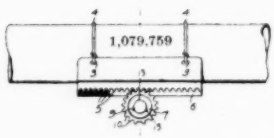
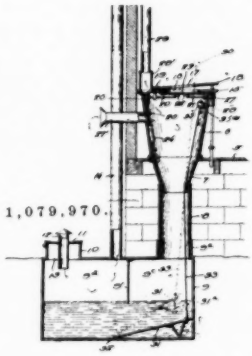


1,079,759



1,079,970.

1,079,759. Pipe-Support. William Beall Gray, Louisville, Ky., assignor to Martin J. Bannon, Louisville, Ky. In combination with the conduit, a device of the character specified, comprising a carriage for the pipe, the upper face of the carriage being concave transversely to fit the pipe to be supported, said carriage having on its under face a longitudinal central rib, and a series of gear teeth on each side of the rib, a roller provided with an annular groove for receiving the rib, and with an annular series of gear teeth on each side of the rib, to fit the teeth of the carriage, said roller having a central longitudinal bore, the ends of the bore being restricted, a shaft received in the bore and fitting the restricted ends, a collar on the shaft at each end of the roller, said shaft having struck up lugs for holding the collars from outward movement, the conduit having a longitudinally extending rib on each side of the central line of its bottom, each rib having a horizontal upper face and a vertical inner face, said ribs having oppositely arranged notches for receiving the ends of the shaft.

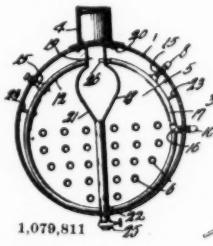
1,079,970. Antiseptic Sewage-vault for Closets. Frederick E. Wilson, Bradford, Pa. In apparatus of the character described, a vault, a dip-plate leading into one end thereof, a bowl connected with the dip-tube, and a transverse partition disposed within the upper portion of the vault at a considerable distance from the lower end of the dip-tube for forming a chamber having a much greater cross-sectional area than the dip-tube, said transverse partition extending downwardly into a chemical solution contained in the vault, as and for the purpose stated.

1,079,811. Water-heater. John O. Van Buskor and Ernest Meier, Dwight, Ill. In a device of the class described, a boiler including a shell, a flue-sheet defining a smoke box in the boiler, and a stack communicating with the smoke box; a single helical coil of pipe in the smoke box, the rear convolution of the coil being located close to the flue sheet, the end of the rear convolution of the coil being extended outside of the boiler; a source of water supply communicating with said end of the rear convolution of the coil; a mud drum secured directly to the top of the shell in advance of the stack and acting as a deflector to facilitate the progress of the products of combustion through the stack; a pipe leading from the bottom of the mud drum through the shell; and a valve in said pipe; the forward convolution of a coil consisting of two

axially alined portions, one of which portions at its outer end communicates with the water space of the boiler, the other end of which enters the mud drum and protrudes inwardly beyond the inner face of the mud drum to form an anti-foaming nozzle, the other of said portions of the forward convolution of the coil entering the mud drum and terminating at its inner end substantially flush with the inner face of the mud drum and opposite to the anti-foaming nozzle.

1,080,159. Roof-joint. Charles Augustus Overton, Coeur d'Alene, Idaho. A roof joint comprising a sleeve adapted to encircle a pipe, said sleeve having an outstanding crease extending down from the top thereof and adapted to be drawn together to contract the sleeve, a cap closing the space between the walls of the crease at the top thereof, said cap being separate from the sleeve and the crease, and having deepening flanges fitting the side walls of the crease externally, and the top of the cap having its inner edge curved to fit the outer surface of the pipe, and fastening means passing through the flanges of the cap and the side walls of the crease.

1,079,775. Bath-tub. James J. Lawler, Pelham, N. Y. A device of the class described comprising in combination with a bath tub, an outwardly turned rim thereon provided with two perforations therethrough, a faucet body positioned beneath said rim, a faucet at each end of said faucet body and extending through said perforations, a pipe connecting centrally of said faucet body and adapted for entering the tub, a hot water entrance pipe extending vertically to a point beneath said rim and thence circumferentially of the tub and beneath said rim and connecting with one end of the faucet body in vertical alinement with one of said faucets, and a vertically positioned cold water pipe between said vertical portion of the hot water pipe and said tub entrance pipe and connected to the opposite end of the faucet body in vertical alinement with the other end of said faucet members.



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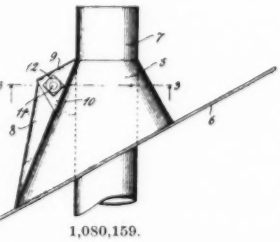

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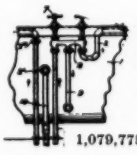

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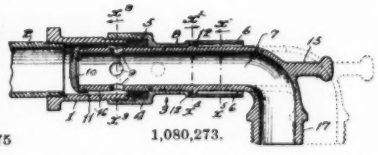


1,080,273.

1,080,273. Telescopic Bib-cock. Everlyn Albert Fountain, Pasadena, Cal. A bibcock comprising a case provided at one end with an enlarged internally threaded chamber and at the other end with a longitudinal way and contracted between the way and the chamber, said way being open at the end of the case; of a nozzle slidable in the case and provided with a lug slidable into and along the way and with a port adapted to slide into and from such a chamber, packing in the chamber and around the nozzle, a body screwed into the chamber against the packing to form an annular passage around the nozzle to the port, and a cap screwed into the nozzle and projecting laterally therefrom to form a shoulder to contact with

Crawford Combination Vise

Having lead jaws, is the only vise made that will hold brass and nickel plated pipe securely without scratching or marring.

Lead jaws can easily be removed and remoulded.

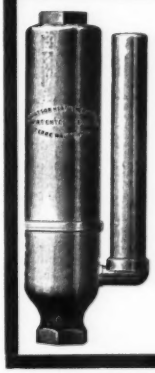
Also equipped with steel jaws which will grip firmly any pipe up to 1¼ in. iron size.

Light, compact, easily carried. Can be readily secured to bench, board or door frame

Every plumber and fitter should have this great labor-saver. No other vise or attachments needed on the job.

Write today for prices.

Crawford Specialty Co.
115 Dartmouth St.
Boston, Mass.



One — Only — One

That's right — there's only one generator—and that's **The Masterpiece** possessing these qualities:

Always retains 10 lbs. pressure.

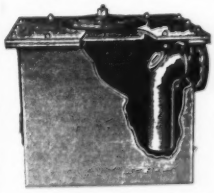
After discharging reseats at not less than 9 lbs. thus losing no heat already gained.

Perfect, simple, attractive and inexpensive—in short THE MASTERPIECE. Manufactured by

THE WATSON SPECIALTY CO.
Terre Haute, Ind.

GREASE MAY BE SLICK
BUT IT CAN'T AVOID THIS TRAP

There's not a kitchen sink made that doesn't need the



BOSTON GREASE TRAP

The BOSTON is the easiest installed, the easiest cleaned, the most reliable and the best trap made for eliminating grease-clogged pipes.

We give full particulars on request and name attractive discounts.

R. ESTABROOK'S SONS
1st and C Streets, SOUTH BOSTON, MASS

THE DEPENDABLE KIND
"AMERICAN"
Anti-Siphon and Resealing Traps

D-398

For Lavatories and Sinks.

Outlet tube can be swung to any position desired.

Trap thoroughly scoured at every discharge. Does away entirely with clogging.

No mechanical seal.

Has cleanout at bottom entire diameter of body.

Made in 1¼ in. and 1½ in. sizes. "P" or "S" and finished or rough nickel plated.

Ask for particulars

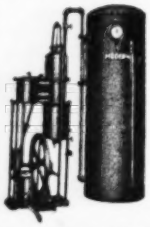
AMERICAN SANITARY MFG. CO.
ABINGDON, ILL.

MASTER PLUMBERS

No matter what the requirements of the country and suburban home, there is a

CALORIC NOISELESS ENGINE

adapted for the work.



Because of its safety, simplicity and lack of noise, the "Caloric" is suitable for use in the home for pumping purposes.

Makes no more noise than a big clock.

The "Caloric" is in a class by itself for pumping water.

Price extremely reasonable.

You can make good money handling the "Caloric" in your locality.

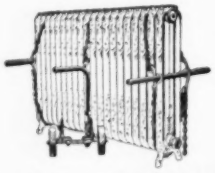
Write for Catalog "C" and our agents proposition.

THE BREMEN MANUFACTURING COMPANY, Bremen, O., U.S.A.

A Friend in Need

For carrying radiators through difficult places, there is nothing equal to

Buell's Combined Carrier and Truck



Pays for itself on the first job.

Handy, strong, adjustable.

No fitter's equipment is complete without it.

Write for details and prices.

BUELL BROTHERS, Fulton, N. Y.

You Can Make Friends and Money

by installing the

Horigan Aqua Expansion Tank

Reduces cost of installation.
Only expansion tank needed on Hot Water Systems.
Placed beside boiler—saves piping to attic.
Smaller pipes—2-in. mains, ½-in. and ¾-in. risers.
More heat—less fuel.
For old or new work. **Cures a sick job.**
Cheapest and best heat generator on the market.
Price, only $11.50.
A trial order will convince you.
Write for complete description.

HORIGAN SUPPLY CO.
ST. JOSEPH, MO.

Weighs no more than a pair of boots,

but it's tested to a load of 1000 lbs.
A very low-priced adjustable boiler stand for boilers of any make, 30, 35 or 40 gals. **No bolts.** Weight, about 5 lbs. Height, 13¼ inches. The fitter will appreciate large space under boiler. Lots of 100 or more? Get jobber's prices.

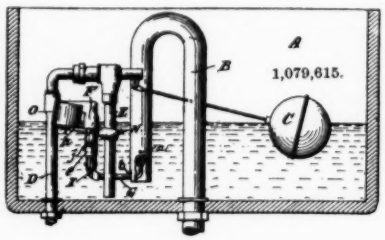
C. H. FOSTER
14 Princeton Ave., St. Louis, Mo.

Service and Valve Boxes Meter Boxes
Testing Plugs Wireless Pipe Locaters
Flush Tank Regulators

M O D E R N
IRON WORKS QUINCY, ILL.

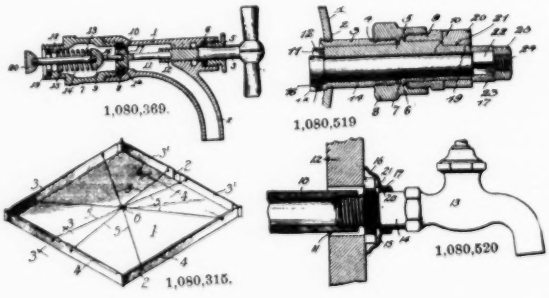
the packing when the nozzle is slid out to close the port while the lug is in the way.

1,079,615. Flushing-tank. George H. Tarleton, New York, N. Y. A siphon jet flushing tank, provided with a tripping device, comprising a water-containing bucket, a counterbalance, and means whereby said bucket and counterbalance are alternately operated to hold open or permit the closing of the valve controlled by said tripping device.



1,079,732. Seat-actuating Mechanism for Water Closets. Alexander L. Waltensperger, Detroit, Mich. In a seat actuating device for water closets, a counterweight supporting arm adapted to be attached to a seat and to extend both rearwardly and at an angle to its rearwardly extending portion, its free end being bifurcated to receive the supporting lug of a suspended counterweight pivoted thereto, the counterweight provided with a projecting lug, and a bolt engaging said lug and carried by the arm for suspending said weight between the tines of the bifurcated portion of the arm.

1,080,369. Faucet. George Rollwing, Hanover, Germany, assignor to Heinrich H. C. Schnelle, Wheeling, W. Va. In a faucet, a barrel, a faucet body detachably connected to said barrel, a valve seat at the entrance to said body, detachably-connected oppositely-facing valves operating to seat against opposite faces of said seat, said valves being independently adapted to control the passage of fluid from said barrel to said faucet body, a stem upon the front end of which the rearmost of said valves is carried, a forwardly facing valve carried by the rear end of said stem, a valve seat at the entrance of said barrel, the last named valve being adapted to engage the last named valve seat simultaneously with the seating of the valve on the opposite end of said stem, a spring controlling the movement of all of said valves in one direction, and means for simultaneously moving all of said valves in the opposite direction.



1,080,519. Means for Anchoring Nipples. Anton C. Schuermann, Decatur, Ill., assignor to H. Mueller Mfg. Co., Decatur, Ill., a Corporation of Illinois. In apparatus for anchoring fittings, a sleeve provided with an eccentric bore and a pusher, an expanding-tool rotatably arranged

in said bore and having a laterally projecting expander-head for co-operation with said pusher, means for rotating said expanding-tool in said bore, and means for rotating said sleeve for causing the expander-head, through the medium of said pusher, to revolve about the axial line of rotation of said sleeve.

1,080,315. Bath-mat. Willard E. Allen, Toledo, Ohio. A bath mat, comprising a flexible, impervious body portion, the edges of which are upturned and connected at the corners of said mat to form an upstanding rim around said mat, rigid strips attached to the sides of said rim comprising strips at opposite sides thereof made in separate sections, whereby the sides of the rim to which said sectional strips are attached may fold inwardly and thus permit the body portion of the mat to sag and flexible handles connected to and which connect different sides of the mat, substantially as described.

1,080,520. No-slip Flange. Anton C. Schuermann, Decatur, Ill., assignor to H. Mueller Mfg. Co., Decatur, Ill., a Corporation of Illinois. A flange for encircling a faucet shank, pipe or the like and bear against a wall, formed with a projecting cylindrical neck through which said shank or pipe may pass and having an inturned marginal end, a yielding friction member seated in said cylindrical neck and bearing at one end against the inturned margin thereof, and a cylindrical collar in said neck and retained therein solely by frictional contact with the inner surface thereof, said collar having an inturned edge bearing against the other end of said friction member.

A HEART-TO-HEART TALK ON HIMSELF—AND HIS NAME'S BILL.

Before the Boston Life Insurance Agents. Reported in "The Standard," Boston.

So I am expected to answer the question "How best to divide one's time?"

Well, you can search me! I can tell you better how it works the other way, for I've tried it all my life and am an authority on the subject.

Be that as it may, there is a pretty good rule of life which Masonic brethren hear over and over again—eight hours devoted to the service of humanity, eight hours for business and eight hours for rest. I wonder what kind of a world this would be if humanity was run on such a program! I guess most of us wouldn't fit in.

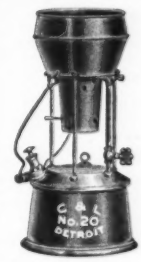
(a) When a fellow is young he is perfectly willing to sleep only three hours and sixteen minutes, and he doesn't care how he spends the rest of the day so long as he doesn't have to work.

(b) When he reaches middle age he would like to do the same way, but he has to pay his bills, and so he has to work some and sleep a little more.

(c) When he gets old he can't work, even if he wants to; and unless he has a pile salted away somewhere he isn't any longer interested in the beautiful things of life. He isn't even a good philosopher. The world's all wrong to him. He is simply sour on the whole thing. There are a lot of us who are going to have that sour feeling later on if we don't watch out.

Today is a preparation period, and old age will be just what we now make it.

Nature and common sense keep urging a fellow to play the game fair. That's the only way he can get the most out of life. He can't cheat it. The flea in the hair of the tail of the dog won't be half so aggravating as an empty pocketbook in old age.



No. 20 Fire Pot
Price each, $4.00 Net

C. & L. Quality The Best

C. & L. Fire Pots and Torches are constructed of the best materials, by experts skilled in the art, and are first in quality, durability and economy. The burners produce intensely hot blue flames in **extreme cold** and **windy weather.** When you need a Fire Pot or Torch you can depend upon, order a C. & L., for they are designed to meet your requirements and are fuel savers.

Your nearest jobber will supply at factory price, or we will ship direct when cash accompanies the order. A postal will bring our catalog—send for it.

Clayton & Lambert Mfg. Co., Detroit, Mich., U. S. A.

Detroit Valve and Fittings Co.

Manufacturers of

Malleable Iron Fittings and Special Malleable and Grey Iron Castings. Galvanizing and Japanning.

DETROIT, MICHIGAN

Write for Catalogue

Good Stock, at Right Prices

Enables users of A. D. M. Co's. high grade Cast Brass, Deep Seal, and Bent Tube Traps and Cast Brass Wastes, to do their work quicker and better with a big saving in time and money. All stock is made from clean new metal, beautiful in design and finished in white, triple nickel plate, (not that dull, leady appearance so often seen in other makes). You save time and money in installing, for they fit the fixture perfectly.

No. 63 Bent Tube Trap

Jobbers will supply at factory price, or we will ship direct if cash accompanies the order. Send for our Booklet with Discount Sheet—it's free.

A. D. Manufacturing Co., Detroit, Mich., U. S. A.

ESTIMATING RADIATION SIMPLIFIED

My "Table of Estimated Radiation" puts before you, in condensed form, the simple and recognized rules of estimating for steam and hot water heating.

Two tables of figures for radiation—one page of rules and exceptions—all printed on heavy celluloid and bound with cloth—this is yours for $1.00 postpaid.

If it isn't worth the money, your money's ready.

HARRY B. PERRIGO
106 Hobart Street NEW HAVEN, CONN.

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Advertisements under this heading 4 cents per word per issue, address included. Send cash with order. To insure insertion copy should be received not later than Wednesday afternoon.

Situations Open.

WANTED—GOOD BOILER SALESman for the state of Connecticut. Apply by letter only to Spence Heater Co., Boston, Mass. 12-13

EXCELLENT OPPORTUNITY FOR man with small capital, plumbing, heating material business. State experience. Box 1042, care "Domestic Engineering." 12/6, 13, 20, 27

WANTED—HEATING ENGINEER, steam and hot water heating and power work. Want close conservative estimator and superintendent. Box 1034, care "Domestic Engineering." 12-6, 13

WANTED—BY A LARGE MANUFACturing Jobber of Plumbing and Heating Supplies, a traveling salesman to cover Northwestern Ohio territory. Must be well versed in the line and be able to give first-class reference. Only first-class men need apply. Box 1047, care "Domestic Engineering." 12-13, 20

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FOR SALE—ONE NO. 21 RICHMOND vacuum cleaner, $250 and one Richmond Suction Cleaner, $20. Both were used for demonstrating purposes only. Baker-Niebuhr Co., La Crosse, Wis. 12-13, 20

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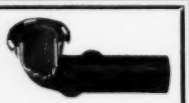

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